

Using Microsoft Works

Microsoft® Works

Integrated Productivity Software

Microsoft®

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Integrated Productivity Software
Version 1.0

For the Apple® Macintosh™

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Where To Begin

You can choose how you want to learn Microsoft® Works, depending on how experienced you are with the Macintosh™, and how much help and practice you want to have before you begin using Microsoft Works on your own.

If	Do this
You want some practice before you begin using Microsoft Works on your own	Start with the <i>Lessons</i> manual. You'll use actual Microsoft Works software and sample files to practice many features of the Microsoft Works tools.
You want to start using Microsoft Works for your own tasks, and you are an experienced Macintosh user	Go right ahead and begin. With the <i>Using Microsoft Works</i> manual as a guide, you'll learn about all you can accomplish with Microsoft Works.

There is a large number of books on the market which are of a popular nature and which are of a high quality. These books are of a high quality and are of a popular nature. They are of a high quality and are of a popular nature. They are of a high quality and are of a popular nature.

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1. The first part of the report is a general introduction to the subject of the study. It discusses the importance of the study and the objectives of the research.

2. The second part of the report is a detailed description of the methodology used in the study. It includes information about the sample size, the data collection methods, and the statistical analysis techniques.

3. The third part of the report is a discussion of the results of the study. It compares the findings with the previous research and discusses the implications of the study.

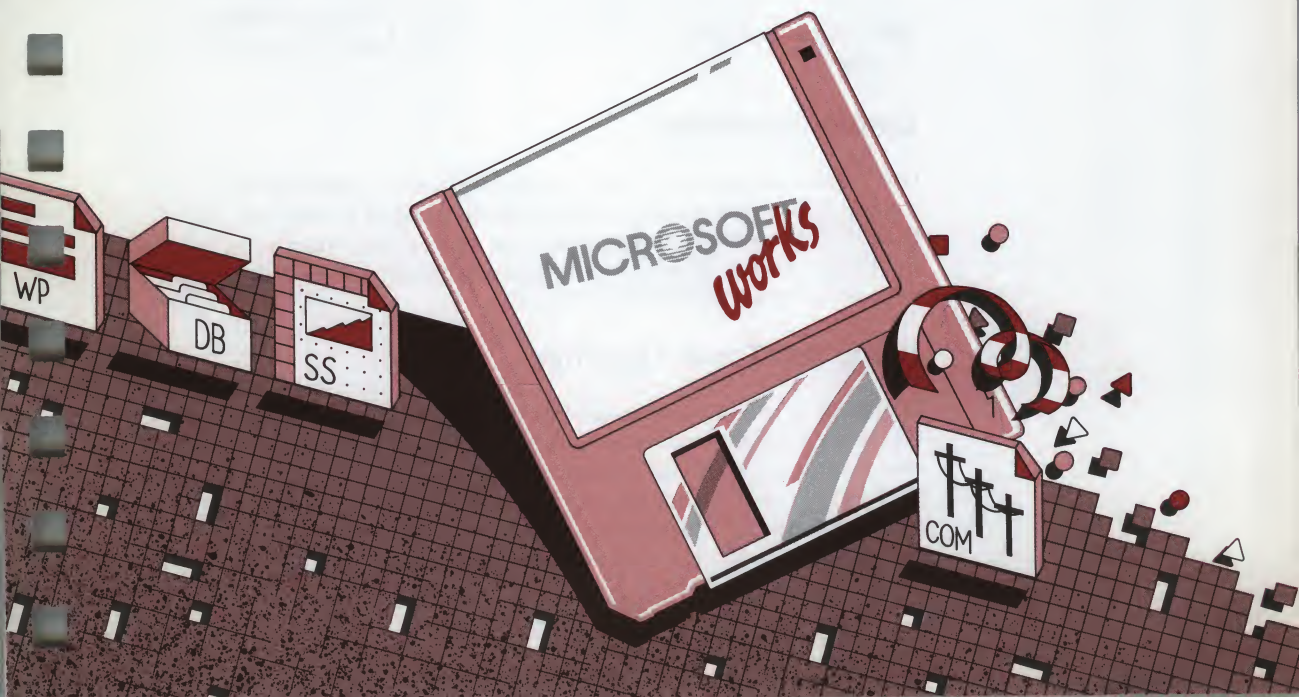
4. The fourth part of the report is a conclusion and a list of references.

Welcome

Welcome to Microsoft Works—all the office tools you may ever need:

- The Word Processor with drawing and mail merge
- The Database with reporting
- The Spreadsheet with charting
- Communications

Use the Microsoft Works tools to automate your work. The limits are up to you.



The Word Processor

Use the Word Processor to write and edit text. Cut and paste electronically to polish your prose. Change the margins and watch Microsoft Works make everything fit. Change words quickly and easily by searching and replacing. Reformat your document with a few clicks of the mouse. Draw lines, circles, and boxes for extra flair. Paste in a chart or a picture to illustrate your text.

The Database

Use the Database to file information. Add new records and remove ones you don't need. Sort lists to organize your reports. Have Microsoft Works find the information you're looking for. Prepare numerous reports from one set of information — with each report providing just the facts you need.

The Spreadsheet

Use the Spreadsheet to calculate numbers. Set up elaborate formulas and let Microsoft Works get the answers for you. Change your assumptions, change your numbers — see what you get. Use built-in calculations to make your work easier. Look at opposite ends of a giant Spreadsheet document — at the same time.

Use the Spreadsheet's charting capability to see what your Spreadsheet numbers look like in charts. Change a number in a Spreadsheet document and see how it affects your chart — instantly. Try different comparisons using the same document. Spot trends at a glance, or see who's got the biggest piece of the pie.

Communications

Use Communications to send your information over the telephone. Talk to commercial information services to find out the latest stock quotes or information on almost any other topic. Exchange documents with other computer users. Keep in touch with a computerized bulletin board.

Using the Tools Together

Microsoft Works is four tools, but one program. That means you can work with several tools at once and move information from one tool to another. For example, you can write a letter with the Word Processor, check an address in the Database, project future sales with the Spreadsheet, and see how your projections look with the Spreadsheet's charting capability. Then you can copy

the chart into your letter and send it off to a colleague with Communications.

Using both the Word Processor and the Database, you can personalize your form letters and print mailing labels to send them out.

Or, you can insert stock quotations you receive with Communications into a Spreadsheet document to see how your portfolio is doing.

About This Manual

Read this manual when you're ready to start using Microsoft Works for your own tasks. This manual assumes you have read your Macintosh owner's guide and are familiar with basic techniques, such as choosing commands, selecting text, and working with windows.

This manual is divided into six parts. The first part, "Common Tasks," guides you through tasks that you'll perform every time you use Microsoft Works. These include tasks such as creating, saving, and printing a document. The next four parts explain the individual Microsoft Works tools: the Word Processor, the Database, the Spreadsheet with charting capability, and Communications. The last part of the manual, "Using the Tools Together," explains how to integrate information from the different tools.

The information on each tool is presented in this way:

- The first chapter of each part shows what a document looks like and explains how to begin using the tool.
- The middle chapters explain, step by step, how to use the tool to perform specific tasks.
- The final chapter describes the commands you can use with the tool.

To learn how to perform a certain task, you should first read the step-by-step description. Then turn to the last chapter on the tool for details on the specific command or dialog box you'll be using.

The appendices explain how Microsoft Works uses disk space, using an external drive or a hard disk, using Microsoft Works with other applications, using Microsoft Works with the LaserWriter printer, choosing commands from the keyboard, and tool capacities and memory limits for various tools.

For a definition of any term you are unfamiliar with, look in the index for the entry that contains the term followed by the word "defined."

About this manual

Note The full name of this product is Microsoft Works. This manual uses the name “Works” for short.

About documents and files

About Documents and Files

Throughout this manual, the words “document” and “file” are used to represent two distinct items.

A document is the information held in the Macintosh’s memory. When you create a new document, the information exists only in memory until you save it on a disk. Once saved, the information stored on the disk is called a file. When you open a file from a disk, the Macintosh puts a copy of the information into its memory and leaves the original on the disk. The information held in memory is called a document. If you make changes to this document and then save it, the new information will replace the file currently on the disk.

- | | | |
|----------------------------|---|----------|
| ■ You create a new... | } | document |
| ■ You make changes to a... | | |
| ■ You save a... | | |
| ■ You print a... | | |
| ■ You close a... | | |
| | | |
| ■ You open an existing... | } | file |
| ■ You delete a... | | |

Getting started

Getting Started

For instructions on how to copy your master Works Program disk and start Works, see the section entitled “Getting Started” in the other Works manual, *Lessons*.

Notice that the Works Program disk has the Set Startup command set so that you bypass the Finder and go immediately to the Open dialog box. If you want to change this arrangement, see your Macintosh owner’s guide for instructions.

Product support

Product Support

If you have a question about Works and you can’t find the answer in your manuals, call our Product Support staff by dialing the telephone number on your registration card. When you call, please have the following at hand:

- The product number on your disk label
- Your Works manuals

Common Tasks

Many routine tasks are common to all of the tools in Microsoft Works. In each tool, you'll use the same commands and procedures to perform these tasks.



This part of the manual contains two chapters describing common tasks and commands:

- Chapter 1, “Common Tasks and Procedures,” explains the tasks you’ll perform every time you use Works, such as opening files, creating and closing documents, getting help, and printing.
- Chapter 2, “Common Tasks Command Reference,” describes the menus and commands common to all tools in Works.

1 Common Tasks and Procedures

Many routine tasks are common to all of the tools in Microsoft Works. This chapter shows you how to perform these common tasks:

- Open a file and create a new document.
- Save a document.
- Close a document.
- Delete a file.
- Use the help information.
- Print a document, including headers and footers.
- Quit Works.

For information on using tools together, like copying a chart to the Word Processor, see "Using the Tools Together," the last part of this manual.

Opening a File and Creating a New Document

When you start Works, you'll see the Open dialog box. You use the Open dialog box to open files from a disk. You can also create new documents from this dialog box, as well as with the New command.

You can have up to ten windows on the desktop at once. The maximum number depends on how much memory your Macintosh has, and how large your documents are. If you have some documents that you refer to often, like an address list and a telephone message form, you can leave these on the desktop while you're working on other documents. Whenever you need to look up a name or take a message, bring the document you want to the front by using the Window menu.

In the Open dialog box, you can also select the Resume Works file to open the document or documents you had on the desktop the last time you used Works. For more information, see "Quitting Works" in this chapter.

For information on using files not created with Works, see Appendix B, "Using Works with Other Applications."

Opening a File from a Disk

To open an existing file

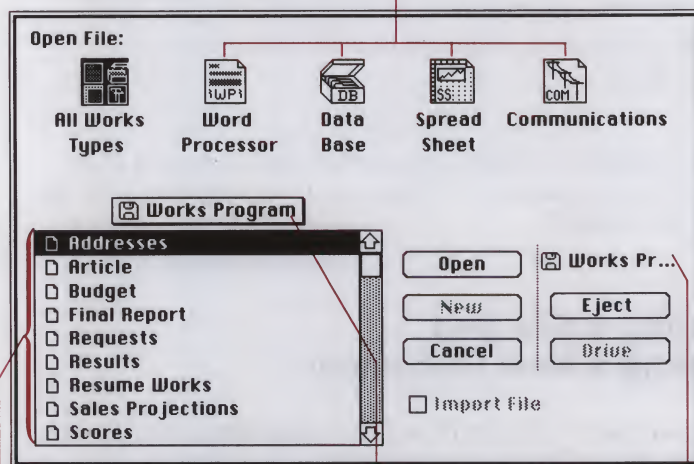
Works lets you open files in the internal disk drive or in an external disk drive.

To open an existing file:

- 1 Choose Open from the File menu.

Works displays the Open dialog box, listing all files and folders on the current disk.

Types of files you can choose from



List of files and folders (all files or just the type you choose)

*Name of current disk
Name of current disk or folder*

- 2 Select the name of the file you want to open.
- 3 Click the Open button.

Works opens a window with a document that is a copy of the file you selected. You can work with this copy, which is in the memory of the computer. The original file remains on the disk until you replace it by saving changes to it, or until you remove it from the disk.

If you want to look at a listing of a specific type of file in the Open dialog box, such as Word Processor or Database files, you can tell Works to list only those.

To list files of one type:

- Click the icon for the tool whose files you want to see.

The list changes to show only files of the type you chose and all folders.

To list one type of file

Creating a New Document

You can create a new document in Works with either the New command or the Open command.

To create a new document from any tool, use the New command.

- 1 Choose New from the File menu.
Works displays the Create New Document dialog box.
- 2 Click the icon for the type of document you want to create.
- 3 Click the OK button.

Works opens a new document window on top of the other windows on the desktop.

To create a new document from a tool

You can also create a new document from the Open dialog box, which appears when you start Works or when you choose the Open command from the File menu.

To create a new document from the Open dialog box:

- 1 Click the icon for the type of document you want to create.
- 2 Click the New button.

Works opens a new document window on top of any other windows you may have on the desktop.

To create a new document from the Open dialog box

Saving a Document

All the information that you produce with Works stays in your Macintosh's memory until you close the document or quit Works—or until the power goes off. If there's a power failure you could lose a lot of work. That's why you should save your documents frequently. When you save a document, Works stores it safely on a disk. Then, if the power goes out, or you accidentally turn off the computer, you'll have a recent copy to work with.

This section explains how to save documents and continue working. You can also save when you close a document or quit Works. To find out more about this type of saving, see “Closing a Document” and “Quitting Works” in this chapter.

To save a document for the first time

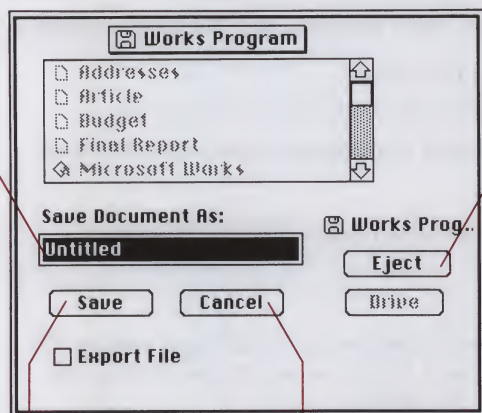
The first time you save a document, you give it a name.

- 1 Choose Save As from the File menu.

Works displays the Save As dialog box, which is ready to accept the name you type.

Type a name here, up to 32 characters.

Click here to eject the disk and replace it with another.



Click here to save the document with the name you typed.

Click here to cancel the save and go back to the document.

- 2 Type a name for the document. You can use any characters from the keyboard, except a colon, including spaces and both uppercase and lowercase letters.

Since there is little free space on the Works Program disk, you'll probably want to save your documents on another disk.

- 3 Use the Eject button to change to another disk.

If the disk you insert is not initialized, Works asks if you want to initialize it. Click the Two-Sided button to initialize the disk if you're asked.

If you have another disk drive, you can use the Drive button to switch to the other disk drive, then save the document on a disk in that drive.

- 4 Click the Save button or press the Return key. (Or click the Cancel button, if you decide not to save.)

Works saves the document on the disk you've chosen, and then you can continue using the document. If you've inserted a different disk to hold the document and you choose any command, Works asks you to insert the Works Program disk. Insert that disk to continue working with Works.

If you're working with a document that you've already saved, you can save changes as you work.

- Choose Save from the File menu.

Works saves your changes, and you can continue working with the document.

When you want to save both the original file and the changes you've made to it, you can save the document with a different name.

- 1 Choose Save As from the File menu.

Works shows you the current name of the document.

- 2 Type a new name for the document.

The new name you type replaces the current one in the text box.

- 3 Click the Save button or press the Return key.

If another file with the name you've typed is already on the disk, Works asks if you want to replace it with the document you're saving. You can replace it, type a different name, or cancel the command.

Works saves the document with the new name. The name of the document on the desktop changes to the new name. The original file remains on the disk with its old name. If you later want to remove the original file, see "Deleting a File" in this chapter.

Note When you use the Save As command, Works treats Database documents a little differently than the others. For more information, see "Save As" in Chapter 2 and "Saving a Selection with a Different Name" in Chapter 8.

To save changes to a document

To save a document with a different name

To save a document to be exported

If you know you'll be exporting a file from Works to another program, you'll need to save it as a text file. This means that only the data, and not the formatting information, is saved.

- 1 Choose Save As from the File menu.
- 2 Follow all the regular procedures, then click the Export File option.
- 3 Click the Save button.

For more information, see Appendix B, "Using Works with Other Applications."

Closing a Document

To close a document

When you want to remove a document from the desktop, you close it.

- 1 Choose Close from the File menu, or click the close box in the upper-left corner of the window.

If you've made any changes to the document, Works asks if you want to save the changes.

You can choose to save your changes, throw them out, or cancel the close. For instructions on saving, see "Saving a Document" in this chapter.

- 2 Click the Yes button to save changes, or the No button if you don't want to save changes.

Works closes the document and removes it from the desktop.

Deleting a File

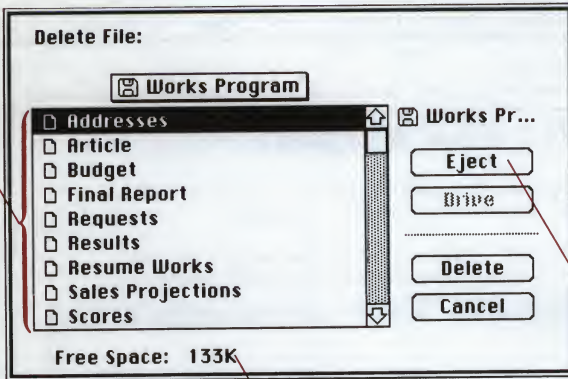
To delete a file

When you delete a file, Works erases the file from the disk completely. You might want to delete a file if you need room on a disk to save another document, or if you've saved a document with another name and want to discard the original file.

- 1 Choose Delete from the File menu.

Works shows you a list of files to choose from.

List of files and folders on the current disk



Amount of free space
on the current disk

Click here to eject the disk
and put in another disk.

If you need to, click the Eject button to change disks or the Drive button to change disk drives.

2 Select the file you want to delete.

3 Click the Delete button.

Works asks you to confirm that you want to delete the file.

4 Click the Yes button to delete it.

Works deletes the file from the disk.

Getting Help

Works Help explains briefly how to use any command in Works.

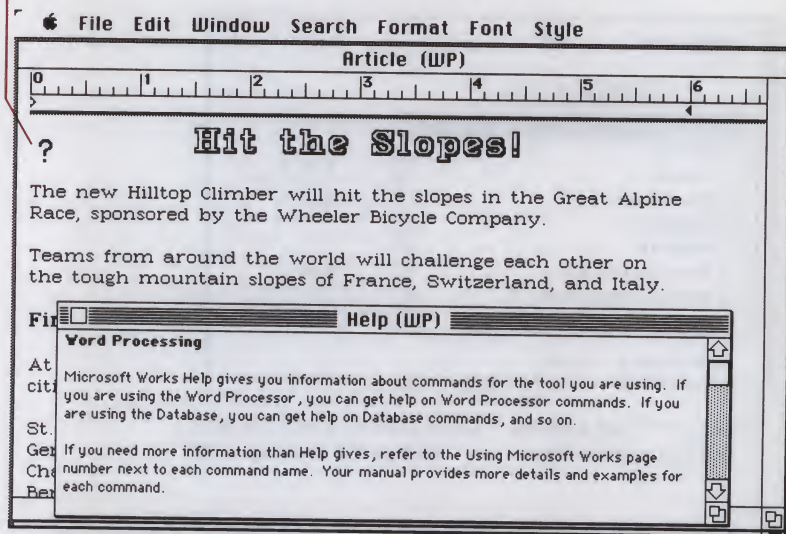
To get help:

1 Choose Help from the Window menu.

The Help window appears at the bottom of your screen.

To get help

The pointer turns into a question mark when you choose Help.



The window contains general information about Help and the tool you're using. When you move the pointer outside the Help window, it turns into a question mark.

- 2 Choose the command you want help on just as you normally choose a command from a menu.

Works displays information about the command you chose in the Help window.

To see more information, you can scroll the Help window just like any other window. To get help on another command, just choose it from a menu. To leave the Help window open and continue working on your document, click anywhere in the document. To close the Help window, click its close box.

Printing a Document

You can print documents from all the Works tools except Communications. In Communications, you can print only the contents of the active window by using the Print Window command. Although you adjust the format for each tool differently, you print them all the same way using the File menu.

Works comes ready to print using both the regular and wide ImageWriter printers. Your Macintosh owner's guide has details on how to set up the ImageWriter. For information on printing with the LaserWriter, see Appendix C, "Printing with the Apple LaserWriter."

When you're working with the Database, you must be in a report window to print or adjust the page setup. For more information, see Chapter 9, "Making a Report."

Before you print, it's a good idea to save your document. For more details on saving, see "Saving a Document" in this chapter.

Setting Up the Page

Before you print a document, choose the Page Setup command from the File menu to specify exactly how you want it to be printed. The Page Setup command lets you specify paper size, printing orientation, special effects, headers, footers, and margins.

To change page specifications:

- 1 Choose Page Setup from the File menu.
The Page Setup dialog box appears.
- 2 Click the appropriate options, and type any information that Works needs.
- 3 Click the OK button or press the Return key.

Works stores your specifications with the document, so you only have to change them once. For a complete description of the available options, see "Page Setup" in Chapter 2.

To change page specifications

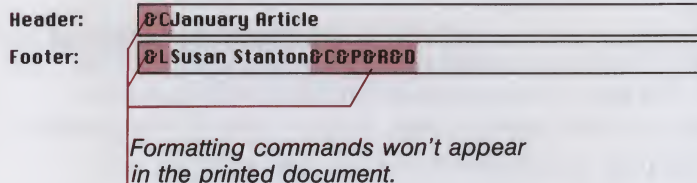
To use custom paper

With Works, you can print on any size paper that fits in your printer. To use a paper size other than those offered, click the Custom Size option in the Page Setup dialog box. For example, click Custom Size if you are printing mailing labels. Then you can specify the exact dimensions of your paper in the Paper Width and Paper Height boxes.

To use headers and footers

When you want to print information at the top or bottom of every page, you use a header or footer. The same header or footer will appear on every page of a document, except that page numbers will appear sequentially.

Headers and footers are set up in the same way. In the Page Setup dialog box, you tell Works what information to print by typing it exactly as you want it to appear. To indicate information such as the current date, page number, or document name, or to have certain information in bold or italic type, Works provides a set of formatting commands; for example, &I specifies that what follows should be printed in italic type. For a list of all formatting commands, see "Page Setup" in Chapter 2.



Headers and footers in Works have been designed to work the same way in each tool, so you need to learn only one procedure. However, in the Word Processor, some additional options are available to you; for more information, see "Headers and Footers" in Chapter 4.

If you don't want the header or footer to print on the first page of your document, choose Title Page from the Format menu before you print. The Title Page command does not change the format of the first page; it only prevents the header or footer from appearing.

Printing Your Document

When you're satisfied with your page setup, you are ready to print your document.

- 1 Choose Print from the File menu.

The Print dialog box appears. Unless you change the settings in this box, Works will print one copy of your entire document using the preset options Faster (for standard quality) and Automatic (for paper feed).

- 2 Make any desired changes to the print specifications.
- 3 Click the OK button to accept your specifications and start printing.

Works begins to print your document.

You can cancel the Print command at any time.

- ☐ Hold down the Command key and type a period (.).

Works may continue to print briefly until the printer's memory is empty. After printing stops, Works returns you to the document window.

If you come across a particular window of information that you'd like to have on paper, you can print just that window with the Print Window command from the File menu. When you use this command, the printer does not automatically move the paper to the top of the next sheet. This lets you print two or more windows on one sheet of paper. When you want to start on a new sheet, choose the Eject Page command.

Quitting Works

When you choose Quit from the File menu, Works records which documents you have on the desktop in a file named Resume Works.

The next time you start Works, you can select the Resume Works file in the Open dialog box to restore the documents that were on the desktop when you left it. You can also double-click the Resume Works icon from the Finder. With Resume Works, you won't have to open individual files in order to pick up where you left off.

To print a document

To cancel printing in progress

To print only the active window

About Resume Works

To quit Works

To quit Works:

- 1 If you want to set up the Resume Works file in a particular way, arrange your desktop as you want it to appear the next time you use Works. (Close any documents that you don't want to appear when you next open Resume Works.)
- 2 Choose Quit from the File menu.
If you've made changes to any open document since the last time you saved, Works asks whether or not you want to save changes for each document.
- 3 For each document, click Yes to save changes or No if you'd rather not.

Works saves any changes and takes you to the Finder. A list of your open documents is recorded in a file called Resume Works.

You can rename the Resume Works file from the Finder just like any other file. By using different names, you can save different arrangements of files and open each arrangement whenever you need it. For example, you might save and rename one arrangement of documents that you want to be on the desktop every time you start Works. This could include a phone list, a to-do list, and a memo template. Or, you can set up any group of related documents that you use to perform a regular task, and rename it to reflect its function. You can have as many renamed Resume Works files as you want.

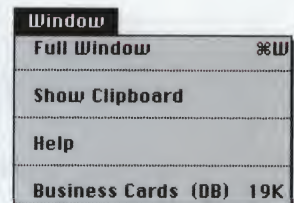
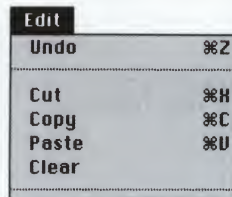
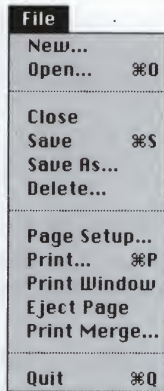
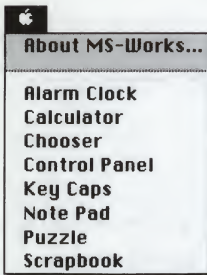
Note The Resume Works file contains a list of the documents from your desktop, not copies of the documents themselves. If you include a document in a Resume Works file, then make changes to that document by opening and editing it individually, the latest version will appear on your desktop when you next open Resume Works.

Works does not save any information about untitled documents in the Resume Works file. To include these documents, save each one with the Save As command to give it a name before you choose Quit from the File menu.

When you want to work with a certain desktop arrangement, you have to start up with the same disks in the disk drives as when you quit, or Works may not be able to find all the files you need. If Works can't find the files, it displays an alert box telling you so.

2 Common Tasks Command Reference

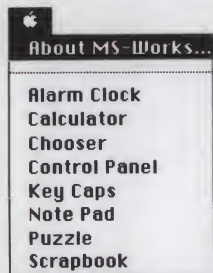
This chapter describes the commands (shaded below) common to all applications in Microsoft Works. These commands are available on four menus: the Apple, File, Edit, and Window menus.



You can invoke some Works commands from the keyboard, as well as by using the mouse. The available Command-key combinations are shown on the menus and in Appendix D.

An alphabetical list of commands appears in the index under "Command."

About MS-Works



The Apple Menu

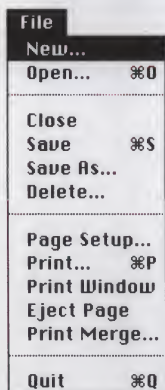
About MS-Works

The About MS-Works command shows how much memory is available for documents. It also provides some basic information about the Works program.

For a discussion of the desk accessories listed on the Apple menu, see your Macintosh owner's guide.

Note While desk accessories should not interfere with the functioning of Works, sometimes problems do occur. If Works malfunctions while a desk accessory is present, try removing the accessory from your disk.

New



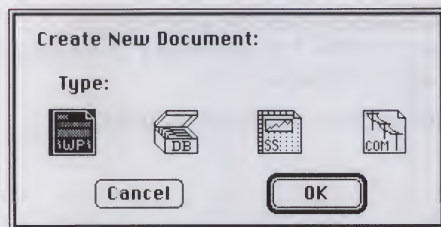
The File Menu

New

The New command creates an empty document in a new window.

If you already have ten windows on your desktop, the New command is dimmed until you remove one or more of the windows by closing them.

When you choose New, Works displays a dialog box in which you choose the type of document you want to create.



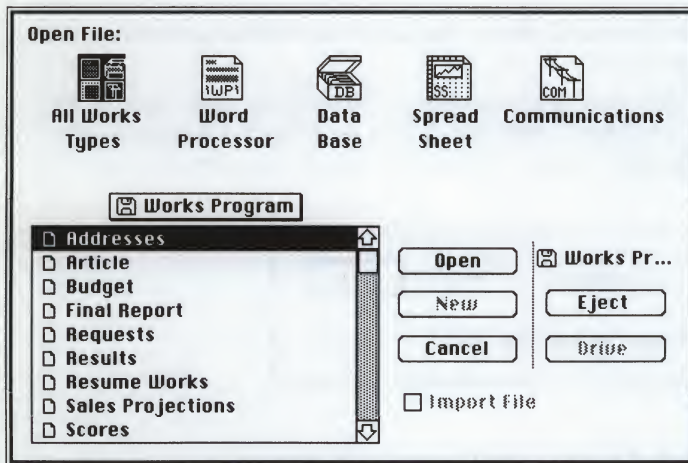
To create a new document, click the icon corresponding to the type of document you want to create, either Word Processor, Database, Spreadsheet, or Communications; then click the OK button. You can also double-click an icon to create a new document.

The window containing the newly created document becomes the active window, and the menu bar changes to reflect the Works tool you have chosen.

Open

The Open command opens a file from the disk and displays a copy of it on your screen.

If you already have ten windows on your desktop, the Open command is dimmed until you remove one or more windows by closing them.



The list box contains a list of files and folders on the current disk. You may have to scroll the list to see all the names. The name of the current disk appears above the Eject and Drive buttons.

Click the icon for a particular tool to see only files of that type and all folders in the list box. Clicking the All Works Types icon displays all Works files and folders.

Click the Import File option after clicking a document type to display only those files that can be imported to Works. For more information, see Appendix B, "Using Works with Other Applications."

To open a file, either select the filename from the list box and then click the Open button, or double-click the filename.

The document appears on the desktop in a new window, which is active. It has the same size and location on the screen as it had when you last saved it. The menu bar changes to reflect the type of document you have selected.

There are four other buttons in the Open dialog box:

New If you click the icon for one of the document types, you can click the New button to create a new document of that type.

Open

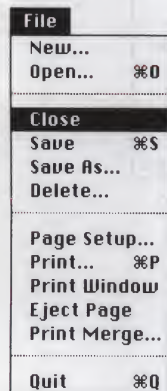
File	
New...	
Open...	⌘O
Close	
Save	⌘S
Save As...	
Delete...	
Page Setup...	
Print...	⌘P
Print Window	
Eject Page	
Print Merge...	
Quit	
Quit	⌘Q

Cancel Click the Cancel button to cancel the Open command.

Eject Click the Eject button to eject the current disk from the disk drive. You can then insert the disk containing the file you want to open.

Drive Click the Drive button to list the files on the other disk drive (if you have one).

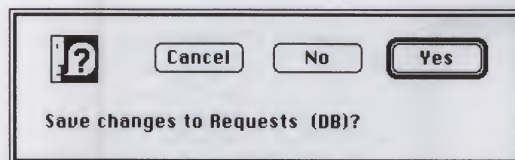
Close



Close

The Close command closes the active document and removes it from your screen.

You can also close a document by clicking the close box in the document window's title bar. If you have made changes to the document since you last saved it, an alert box appears.

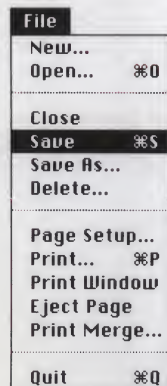


Yes Click the Yes button to save the changes.

No Click the No button if you don't want to save the changes.

Cancel Click the Cancel button to cancel the Close command. In this case, the document isn't closed and the changes aren't saved. Works returns you to the document you were working on when you chose the Close command.

Save



Save

The Save command saves the active document on the disk containing the file associated with the document. Works saves the document with its current name and replaces the old copy of the file on the disk. Works also stores the location and size of the window with your saved document.

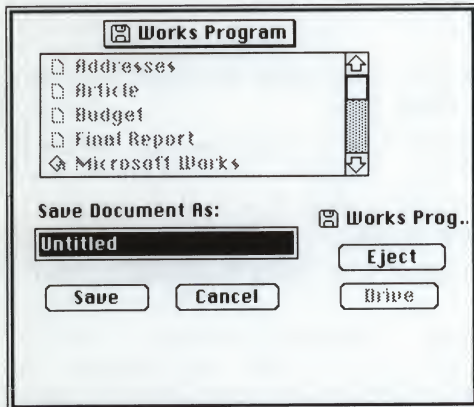
After you save a document, it remains active, so you can continue to work on it. It is a good idea to save your work periodically: a power failure may cause you to lose changes you've made since you last saved.

If the document to be saved has not been saved previously, Works displays the Save As dialog box. For more information, see "Save As," below.

Save As

The Save As command saves new documents or new versions of existing files. Works also saves the location and size of the window along with your data.

When you choose Save As, Works displays a dialog box. (You'll also see this dialog box if you choose the Save command for a document that has not been previously saved.)



Save Document As If the document has a name already, Works proposes it in the text box. To accept the proposed name, and replace the file with the same name on the disk, click the Save button. To save the document under a different name, so you'll retain the existing file and also save the version with your latest changes, edit the proposed name or type a new one.

If the name you type has already been used for a different document on the disk, or if you don't change the proposed name, Works asks if you want to replace the existing file on the disk. Click the Yes button to replace the file on your disk with the active document. Click the No button to see the Save As dialog box again. You can then type a different name for the document.

Eject Click the Eject button to eject the current disk. You can then insert a different disk on which to save the document.

Drive If you have an external disk drive or a hard disk, you can save the document on another disk drive. Click the Drive button to change to the disk drive on which you want to save the document.

Save As

File	
New...	
Open...	⌘O
Close	
Save	⌘S
Save As...	
Delete...	
Page Setup...	
Print...	⌘P
Print Window	
Eject Page	
Print Merge...	
Quit	
	⌘Q

After you save a document with Save As, it remains on the screen, but its name changes to the new name you gave it. You can continue to make changes to it and then save it, either with the same name using the Save command, or with another name using the Save As command.

Note When you click the Save Selected Records option for a Database document, the Save As command works slightly differently than described above. For more information, see “Save Selected Records Only,” below.

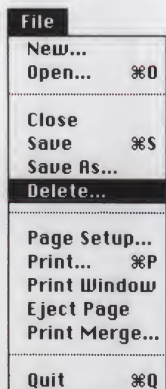
Depending on which Works tool you’re using, there may be one or two other options in the dialog box.

Export File Click this option before you click the Save button if you want to save only the text of your document and not the formatting information. Use this option when you want to export a Works file to use in another program.

For more information, see Appendix B, “Using Works with Other Applications.”

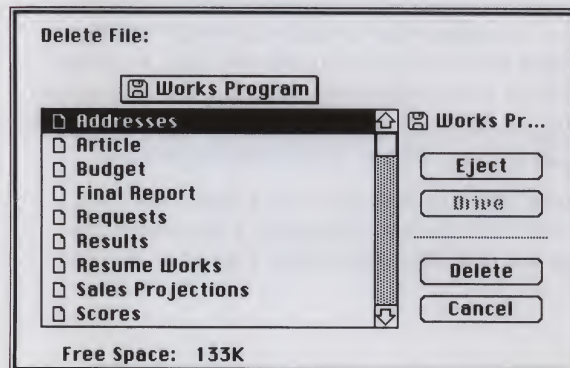
Save Selected Records Only Click this option before you click the Save button if you previously used the Match Records or Record Selection command in the Database, and you want to save only those selected records. Remember to specify another name for the document so that you don’t replace your complete Database document with this new smaller one. This is a special case of the Save As command in which Works does not replace the current window with the new document.

Delete



Delete

The Delete command deletes files from your disk.



The list box contains the names of all files and applications (except Works) on the current disk. You may have to scroll the list to see all the names. The name of the current disk is shown above the buttons.

To delete a file from your disk, select the file you want to delete and then click the Delete button, or double-click the filename.

Free Space This number gives the amount of unused space, in bytes, on the current disk.

In addition to the Delete and Cancel buttons, there are two other buttons in this dialog box:

Drive Click the Drive button to list the files on the disk in the other disk drive.

Eject Click the Eject button to eject the current disk from the disk drive. You can then insert the disk containing the file you want to delete.

Important You cannot undo the Delete command. If you delete a file, it is not retrievable. However, if the document associated with the deleted file is open when you make the deletion, you can recover your information by saving the document.

Page Setup

The Page Setup command controls the appearance of a printed document.

When you save a document, Works stores the settings chosen with this command along with the document.

Note In the Database, Page Setup is available only when a report window is active.

Page Setup

File	
New...	
Open...	⌘O
.....	
Close	
Save	⌘S
Save As...	
Delete...	
.....	
Page Setup...	
Print...	⌘P
Print Window	
Eject Page	
Print Merge...	
.....	
Quit	⌘Q

ImageWriter v2.2

Paper: ☒ US Letter ☐ A4 Letter
☐ US Legal ☐ International Fanfold
☐ Computer Paper ☐ Custom Size

Orientation:

Special Effects: ☐ Tall Adjusted
☐ 50 % Reduction
☐ No Gaps Between Pages

☐ Print Row and Column Numbers

Header:

Footer:

Left Margin: **Right Margin:**
Top Margin: **Bottom Margin:**

Paper Width: **Paper Height:**

OK **Cancel**

Works comes with the ImageWriter printer driver, which can be used with both the standard and wide ImageWriter printers. If you use a printer driver other than this one, the dialog box you see may differ slightly from the one you see here.

Paper Click an option:

US Letter	8-1/2" by 11"
US Legal	8-1/2" by 14"
Computer Paper	15" by 11" (this option works only with a 15" ImageWriter)
A4 Letter	8-1/4" by 11-2/3" (European letter size)
International Fanfold	8-1/4" by 12"
Custom Size	Defined by you

While all margins are set to 0, you can specify custom-sized paper to a maximum height of 273" and a maximum width of 273". To use a width of more than 15", you must click the icon for wide printing orientation. The minimum height for custom-sized paper is 1", and the minimum width is 1". When all margins are set to 1, the minimum height and width is 2.1". If you use continuous form paper, measure the height of the paper between the perforations. If you use continuous form labels, measure the distance from the top edge of one label to the top edge of the next label.

Note Custom Size paper is not an available option when you use a LaserWriter printer.

Orientation Click one of the icons:

Tall	Vertical orientation
Wide	Horizontal orientation

Special Effects Click any options you want:

Tall Adjusted	Vertical orientation; prints pictures with correct proportions
50% Reduction	Prints your document at half the normal size
No Gaps Between Pages	Prints your document over the perforation with no extra spacing

Print Row and Column Numbers Click this option if you are printing a Spreadsheet document and you want the row and column headings (numbers and letters) to appear.

Paper Width If you click the Custom Size option, type the paper width in inches here.

Paper Height If you click the Custom Size option, type the paper height in inches here.

Header If you want page headers, type the text you want Works to use for the header in this text box. Works prints the header at the top of each page, one-half inch from the top edge of the paper.

Footer If you want page footers, type the text you want Works to use for the footer in this text box. Works prints the footer at the bottom of each page, one-half inch from the bottom edge of the paper.

Works provides a set of formatting commands to use in headers and footers. You can tell Works to print parts of the header and footer at the left, right, or center of a page; to include the page number, date, time, and document name; and to print in bold or italic.

Type	To
&L	Align the characters that follow at the left margin.
&C	Center the characters that follow.
&R	Align the characters that follow at the right margin.
&P	Print the page number.
&D	Print the current date.
&T	Print the current time.
&F	Print the name of the document.
&B	Print the characters that follow in bold.
&I	Print the characters that follow in italic.
&&	Print a single ampersand.

You can include any number of these instructions in a single header or footer. For example, you would type *<elephone Report&C&D&R&P* in the header text box to print “Telephone Report” in a header at the left margin on each page, the current date centered in the header, and the page number at the right margin. You can use either uppercase or lowercase letters in formatting commands.

Note When a Word Processor document is in the active window, you can use the Font and Style menus to adjust the font and style of headers and footers. You can also print consecutive page numbers in headers throughout a series of documents. For more information, see “Headers and Footers” in Chapter 4.

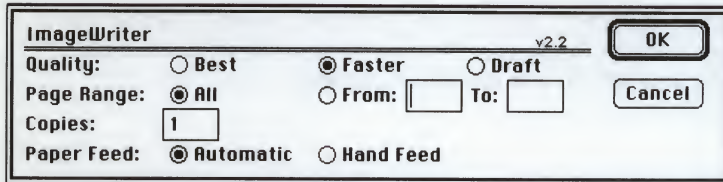
Margins The margin settings determine the amount of space between the edge of the paper and the printed document.

The margins are preset to 1” at the top, bottom, and sides. To change a margin, press the Tab key to move the selection into the box you want, then type the number of inches (such as 0.5, 2, or 2.75).

Note For a Word Processor document, if you set right and left margins that conflict with the indent markers on the ruler, Works displays an alert.

Print

The Print command prints the active document using the settings from the Page Setup command and any manual page breaks you set.



Quality The Quality setting you choose determines the print resolution. The higher the resolution—that is, the more dots used to form characters—the better the quality. If you click 50% Reduction in the Page Setup dialog box, the Quality options are dimmed.

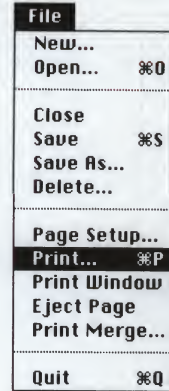
Click	For
Best	High resolution (sharpest)
Faster	Medium resolution (less sharp, but prints faster)
Draft	Low resolution (least sharp, but prints fastest) Prints text only, no graphics

Page Range To print all the pages in the document, click All. To print a range of pages from the document, click the From option and type the first page number of the range you want to print. Then press the Tab key to move the insertion point into the To box, and type the last page number of the range you want to print.

Copies Type the number of copies you want.

Paper Feed Click Automatic if you are using continuous form paper. Click Hand Feed if you are using single sheets of paper.

Print



Print Window

File	
New...	
Open...	⌘O
<hr/>	
Close	
Save	⌘S
Save As...	
Delete...	
<hr/>	
Page Setup...	
Print...	⌘P
Print Window	
Eject Page	
Print Merge...	
<hr/>	
Quit	⌘Q

Print Window

The Print Window command prints the contents of the active window.

When you choose Print Window, Works prints only the data you see in the window, without the title bar, scroll bars, and size box.

The sheet of paper is not ejected from the printer, except when printing with an Apple LaserWriter, so you can print several related windows on a single sheet of paper.

Eject Page

File	
New...	
Open...	⌘O
<hr/>	
Close	
Save	⌘S
Save As...	
Delete...	
<hr/>	
Page Setup...	
Print...	⌘P
Print Window	
Eject Page	
Print Merge...	
<hr/>	
Quit	⌘Q

Eject Page

The Eject Page command ejects the paper in the ImageWriter to the top of the next sheet of paper.

Eject Page is most useful for bringing the paper in your printer to the top of the next page after you use the Print Window command.

Print Merge

The Print Merge command is available only for Word Processor documents. For information on how to use it, see “Print Merge” in Chapter 5.

Print Merge

File	
New...	
Open...	⌘O
Close	
Save	⌘S
Save As...	
Delete...	
Page Setup...	
Print...	⌘P
Print Window	
Eject Page	
Print Merge...	
Quit	
	⌘Q

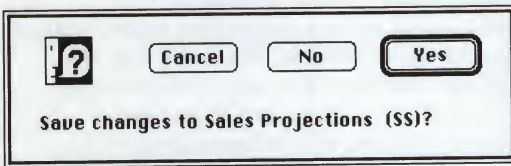
Quit

The Quit command ends a Works session.

If you have made changes to any open documents but have not saved them, Works displays an alert box for each document.

Quit

File	
New...	
Open...	⌘O
Close	
Save	⌘S
Save As...	
Delete...	
Page Setup...	
Print...	⌘P
Print Window	
Eject Page	
Print Merge...	
Quit	
	⌘Q



Yes Click the Yes button to save the changes.

No Click the No button if you don't want to save the changes.

Cancel Click the Cancel button to cancel the Quit command. If you click the Cancel button, the document is not saved, and you return to the document named in the alert box.

For a description of how to save your document before you choose Quit, see “Save” and “Save As” in this chapter.

When you quit, Works saves a list of the files associated with your open documents in a file called Resume Works. The next time you start Works, you can select the Resume Works file in the Open dialog box. Works then restores the documents that were on the desktop when you quit.

The Edit Menu

The first five commands on the Edit menu are common to all tools in Works. For related information specific to a particular tool, see the part of this manual which pertains to that tool.

Undo

Edit	
Undo	⌘Z
<hr/>	
Cut	⌘H
Copy	⌘C
Paste	⌘V
Clear	

Undo

The Undo command reverses the effects of the last editing command made.

When you cannot undo something, the command is dimmed.

Important You cannot undo the Delete command or any other command from the File menu.

Cut

Edit	
Undo	⌘Z
<hr/>	
Cut	⌘H
Copy	⌘C
Paste	⌘V
Clear	

Cut

The Cut command removes the current selection from your document and places it on the Clipboard.

You can cut text from anywhere in a document, including the entry bar in Database and Spreadsheet documents.

In the Spreadsheet, use the Cut and Paste commands to move data to another Spreadsheet document or to a document from another tool. Within a single Spreadsheet document, however, use the Move command to rearrange your data. For more information, see "Move" in Chapter 16. In the Database and Word Processor, information within a single document can be moved with Cut and Paste.

Copy

Edit	
Undo	⌘Z
<hr/>	
Cut	⌘H
Copy	⌘C
Paste	⌘V
Clear	

Copy

The Copy command copies the current selection and places it on the Clipboard. Your document remains unchanged.

You can copy text from any part of a document, including the entry bar in Database and Spreadsheet documents.

When you are editing in the entry bar, you can copy text by selecting it and choosing Copy. Works puts a copy of the selected text on the Clipboard, replacing the Clipboard's contents. After you copy a selection, you can paste it at the insertion point in the entry bar.

Paste

The Paste command pastes the information currently on the Clipboard into the active document at the insertion point.

In the Spreadsheet, the Paste command pastes all cell properties for every cell pasted, including the formula or value, number format, grid status, style, alignment, and protection status. If you want to paste only values without any formulas use the Paste with Options command; for more information, see “Paste with Options” in Chapter 16.

Clear

The Clear command removes the selection from your document, but does not place it on the Clipboard. Use Clear when you want to delete rather than move or copy information.

Paste

Edit	
Undo	⌘Z
Cut	⌘H
Copy	⌘C
Paste	⌘V
Clear	

Clear

Edit	
Undo	⌘Z
Cut	⌘H
Copy	⌘C
Paste	⌘V
Clear	

The Window Menu

Full Window/Small Window

The Full Window command displays the active document using the full size of the Macintosh screen. The Small Window command displays the document in a slightly smaller size or in the size you previously made the window.

To set the size for Small Window, drag the size box in the lower-right corner of the window. Use Small Window when you want to view portions of several documents simultaneously.

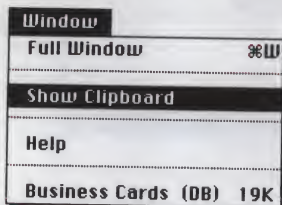
The size and screen position of the window are stored with a document when you save it. The next time you open the file, Works automatically restores the size and position of its window.

You can switch back and forth between Full Window and Small Window at any time. When you choose either command, the menu changes to reflect the other command—ready for you to switch back again. You can also switch between Full Window and Small Window by double-clicking the title bar or size box of a window.

Full Window Small Window

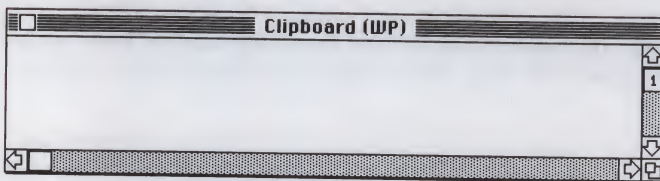
Window	
Full Window	⌘W
Show Clipboard	
Help	
Business Cards (DB)	19K

Show Clipboard Hide Clipboard



Show Clipboard/Hide Clipboard

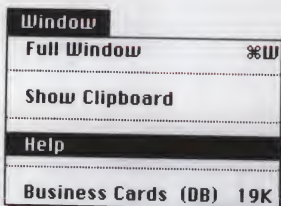
The Show Clipboard command opens the Clipboard window. This window contains the last selection you cut or copied since you turned your Macintosh on.



You cannot edit the contents of the Clipboard.

To close the Clipboard window, click its close box, choose Close from the File menu, or choose Hide Clipboard from the Window menu.

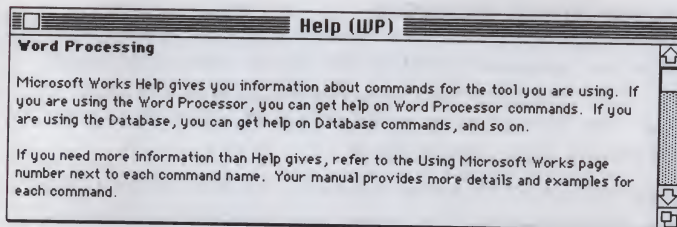
Help



Help

The Help command leads you to the Works help system.

When you choose Help, Works displays a window:



The window contains general information about the tool corresponding to the active window. It also directs you to additional information about each command available for the tool.

When the Help window is active, the pointer becomes a question mark anywhere outside the Help window. To get help about any command, pull down a menu and choose the command. A description of the command, as well as a page number from this manual, is displayed in the window.

For example, if you want a brief explanation of the Save As command, choose Save As from the File menu while the Help window is active. A description of Save As is displayed in the window.

You can scroll vertically in the Help window, change its size and position, and close it, just as with other Works windows.

You can leave the Help window open while you work on a document. To make the document active, click anywhere within the document window.

To close the Help window, click its close box.

Activate Window

The Activate Window command is actually a group of commands that changes according to the windows you have open on the desktop. There is always one command for each open window. The only exceptions are the Help and Clipboard windows.

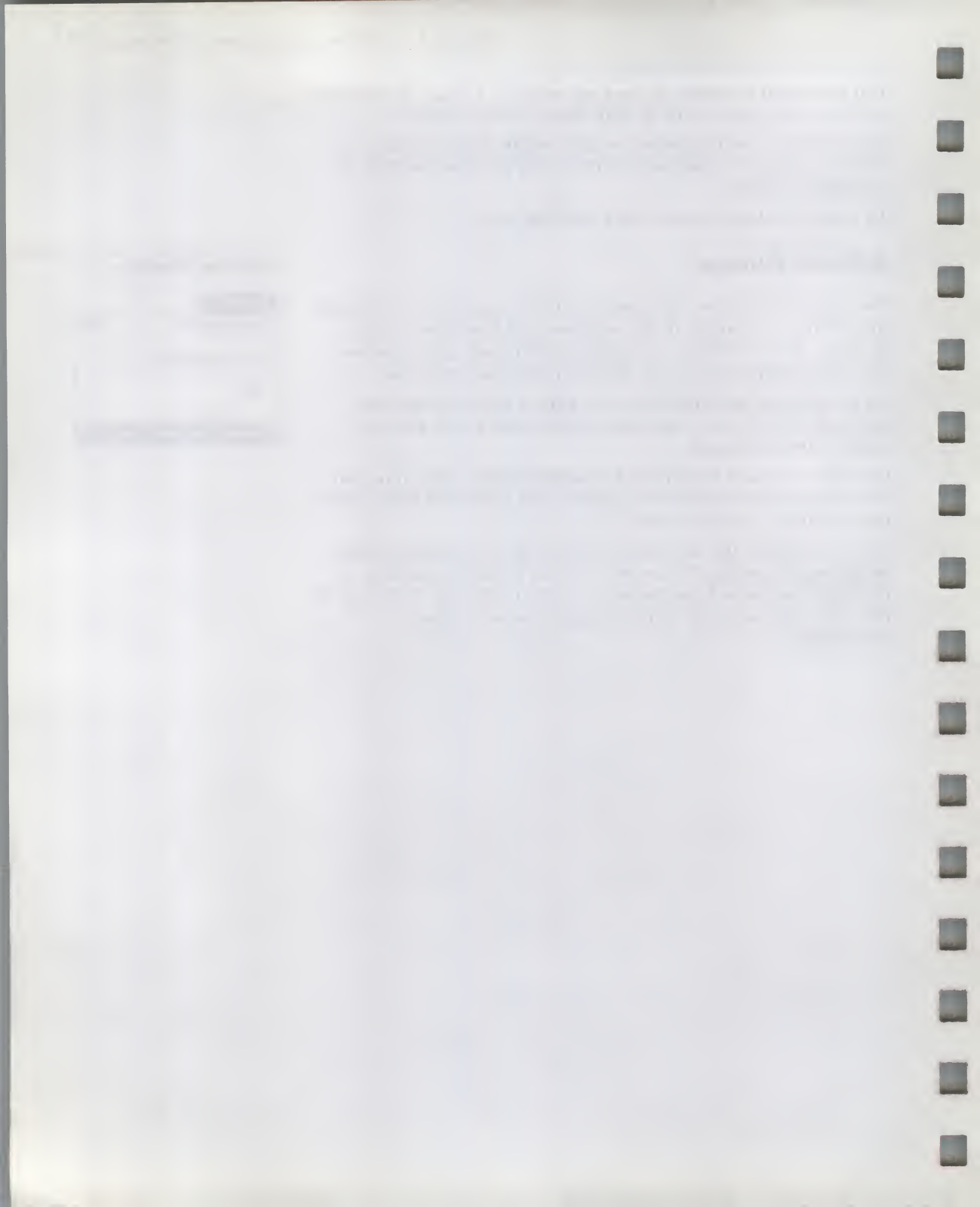
Each command that appears in this part of the Window menu activates the window containing the document with the same name as the command.

Use this command to activate a window quickly. The command name shown here is just an example; your menu will show whatever windows you have open.

You can activate the last window in the list of document names by pressing Command-, (comma). Works brings the window to the front, and moves the document name to the top of the list. In this way, you can easily move through a series of open documents.

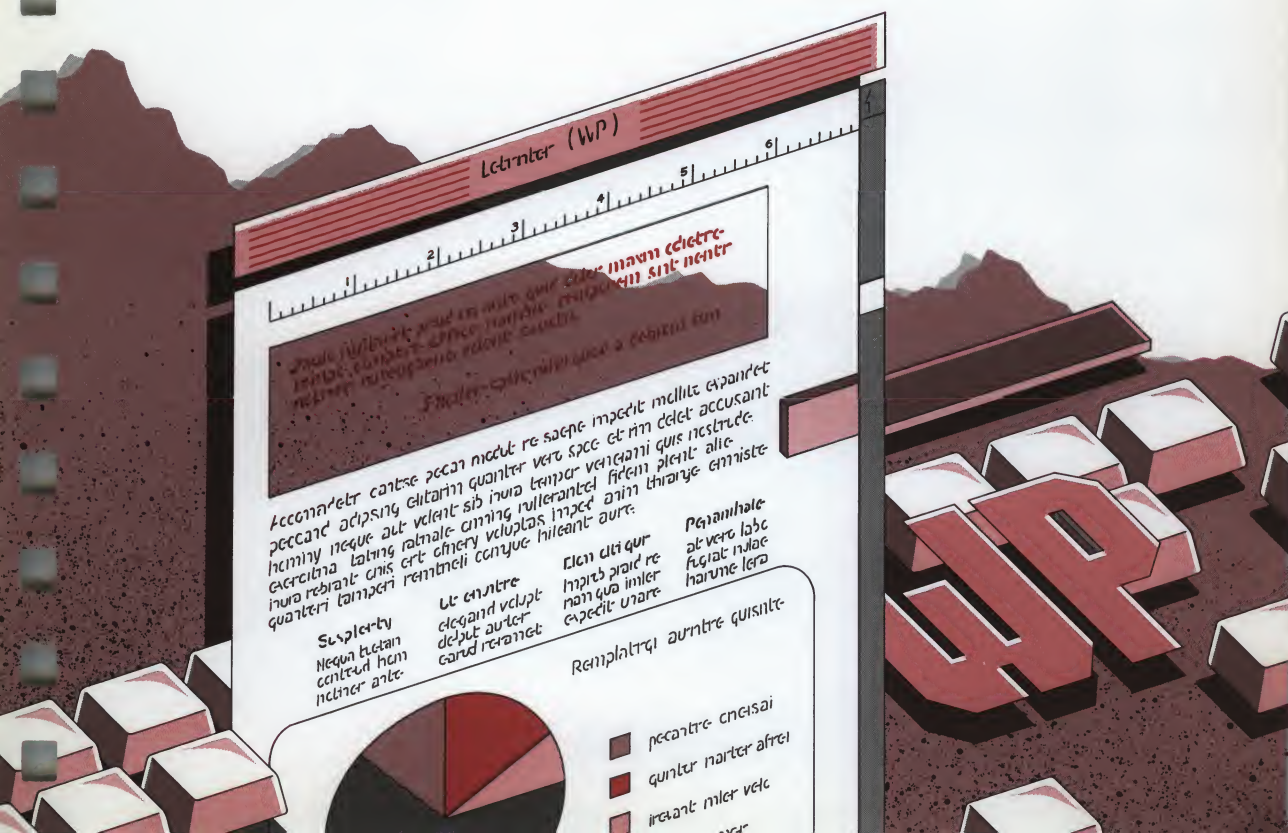
Activate Window

Window	
Full Window	⌘W
Show Clipboard	
Help	
Business Cards (DB)	19K



The Word Processor

You can write just about anything with the Word Processor: letters, memos, reports, press releases, advertising copy, or even a novel.



The next three chapters show you what you need to know about writing with the Word Processor:

- Chapter 3, “Writing and Editing,” shows what a Word Processor document looks like, how to enter and edit text, and how to change the font, the type style, and the type size.
- Chapter 4, “Formatting a Document,” explains ways to arrange your writing on the page, and how to draw lines and shapes within a document.
- Chapter 5, “Word Processor Command Reference,” describes the Word Processor commands.

If you want to use the Word Processor with other tools — for example, to make form letters or mailing labels with Database information, or to copy charts from the Spreadsheet — see “Using the Tools Together,” the last part of this manual.

3 Writing and Editing

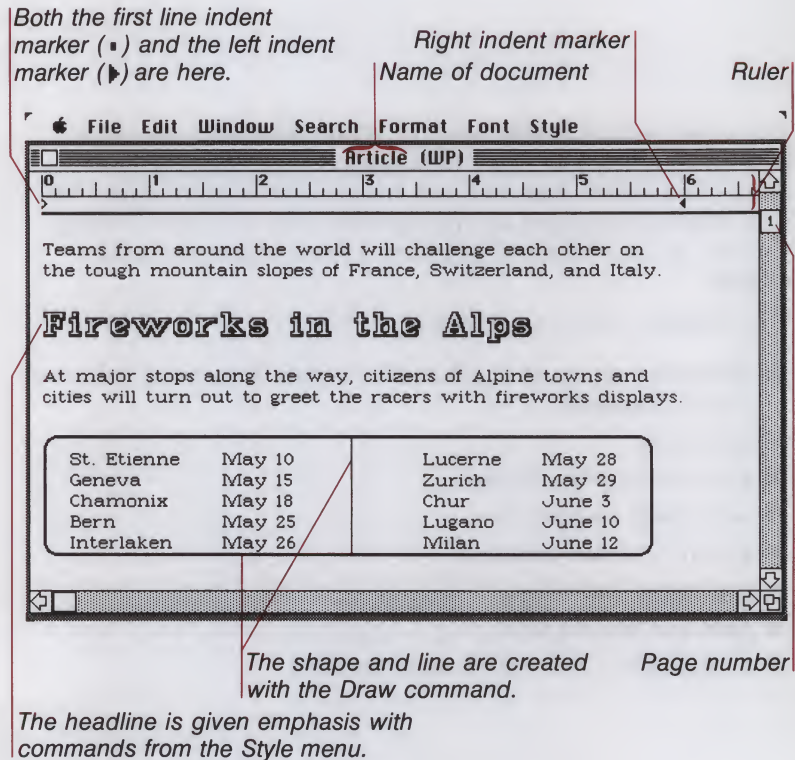
When you write and edit with the Word Processor, you don't have to retype whole pages to make a change. You just insert, delete, or correct your text, and Works automatically adjusts the lines within paragraphs and repaginates. After you finish editing with the Word Processor, you have a finished product, ready to print.

This chapter shows you how to:

- Recognize the parts of a Word Processor document, and create a new document.
- Enter text.
- Undo an editing mistake.
- Select text and pictures.
- Delete text and pictures.
- Cut, copy, and paste.
- Find and replace text.
- Change fonts, type styles, and type sizes.

An Overview

A Word Processor document looks like this:



To create a new Word Processor document

Before you can type or edit a document, you need to create a new document or open an existing file.

When you start Works or choose Open from the File menu, the Open dialog box appears.

To create a new Word Processor document:

- 1 Click the Word Processor icon.
- 2 Click the New button.

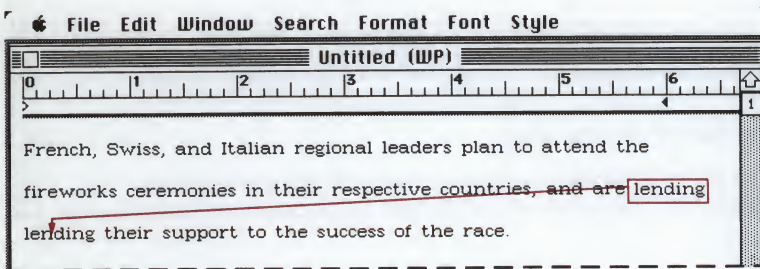
Works opens a new Word Processor document. You can begin typing.

Typing

To write with the Word Processor, you type text. The Word Processor stores the text in your Macintosh's memory until you close the document.

Text is made up of characters—letters, numbers, symbols, and spaces are all characters to the Word Processor.

The Word Processor takes care of fitting your words onto lines as you type. When you reach the end of a line, any word that doesn't fit within the right indent marker automatically moves to the next line. This is called wordwrap.



Wordwrap lets you type complete paragraphs without pressing the Return key. If you insert text in the middle of a paragraph, wordwrap automatically adjusts the lines; if you delete text in the middle of a paragraph, wordwrap closes up the empty space.

As with an electric typewriter, the Return key in the Word Processor ends a line and starts a new one. But the Word Processor Return key actually types an invisible character, called a return character. This character signals the end of a paragraph for wordwrap.

You should press the Return key only at the end of a paragraph. Wordwrap makes a neat paragraph of anything between return characters.

If you want to control the ends of lines yourself—as in poetry or lists, for example—you can press the Return key at the end of each line. A single line with a return character at the end is just a short paragraph to the Word Processor. Wordwrap won't affect these lines.

Wordwrap

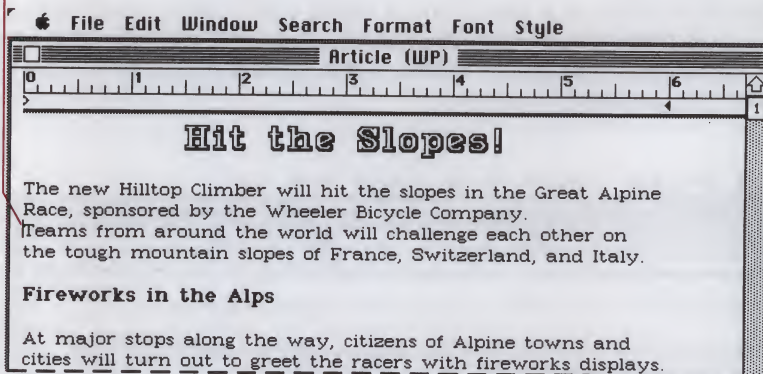
The Return key

To insert a blank line

You can also use the Return key to insert blank lines into your document.

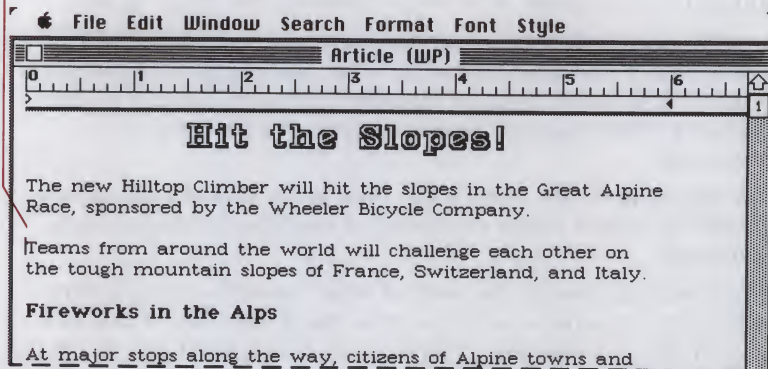
- 1 Position the insertion point where you want to insert the blank line.

Position the insertion point here.



- 2 Press the Return key once if you're at the beginning of a paragraph, or twice if you're anywhere else in the text.

A blank line is inserted just above the insertion point.



You can insert text anywhere in a document by moving the insertion point.

- 1 Position the pointer and click to move the insertion point to where you want to insert some text.

You may need to press the Return key, the Tab key, or the spacebar to put the insertion point where you want it.

- 2 Begin typing.

Your text pushes the insertion point and any following text to the right.

Each Macintosh font contains optional characters for foreign letters, accents, and commercial, mathematical, and scientific symbols. For information on how to use these characters, see your Macintosh owner's guide.

As you continue to type text into your Word Processor document, you will notice that a horizontal dotted line appears on your screen. This is a page break indicator. For more information about page breaks, see "Formatting an Entire Document" in Chapter 4. When the page break has scrolled up on the screen so that it is the first line in the window, the page number in the vertical scroll box changes to show the page number corresponding to the first line of text in the window.

Undoing a Mistake

In many cases, the Undo command cancels the last action you've taken. You can undo most Word Processor commands from the Edit, Format, Font, and Style menus.

To undo a mistake:

- ▣ Choose Undo from the Edit menu.

If Undo isn't appropriate or allowed for the last action you took, the command is dimmed.

If you save your text often (every ten minutes or so), you may prevent major mistakes that you can't undo. Saving a document stores a copy of it on your disk. For more information, see "Saving a Document" in Chapter 1.

To insert text

To type optional characters

Page breaks and page numbers

To undo a mistake

Selecting Text and Pictures

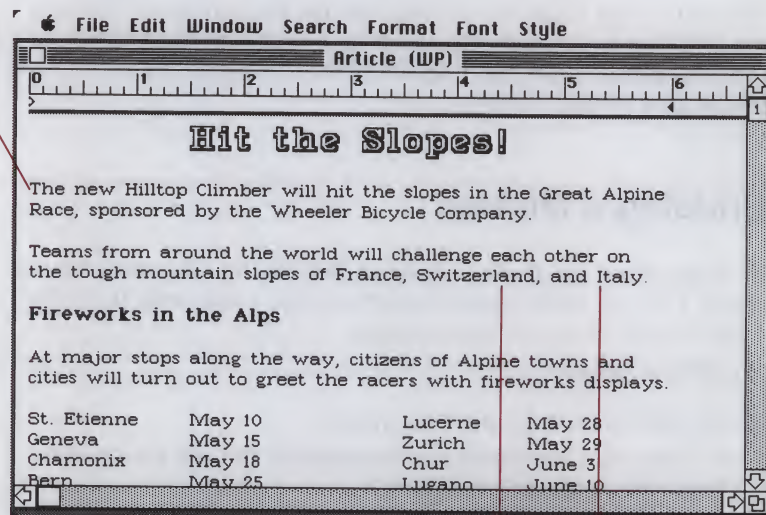
When you want to do something with a picture or a block of text—remove it, for example—you must first select it. Works shows a selection by reversing the highlight—turning black letters or pictures on a white background into white on black.

You can select a character, a word, a line, a sentence, a paragraph, any size block of text, or a picture. In most cases, you must select text and pictures separately. However, if, while you are selecting a block of text, you also select a complete picture, then both the text and picture will be selected.

To select a line or paragraph quickly, move the insertion point to the left edge of the document—between the left edge of the window and the left margin of the text. When you're at the correct place, the I-beam pointer becomes an arrow pointer. Click to select a line of text, or double-click to select an entire paragraph.

Click here to select the line.

Double-click here to select the paragraph.



Double-click a word to select it.

Drag across a character to select it.

To select text by dragging:

- Position the pointer on one edge of what you want to select, and press the mouse button. Drag to select as much as you want, then release the button.

A picture can be a drawing from a drawing program such as MacPaint, a line or figure you draw with the Word Processor, or a chart from the Works Spreadsheet. When you select a picture, a blinking dashed line around it shows you that it's selected.

To select a picture:

- 1 Click on or to the left of the picture.
- 2 Choose Select Picture from the Edit menu.

If there are several pictures in the same area, keep choosing Select Picture without moving the insertion point, until the one you want is selected.

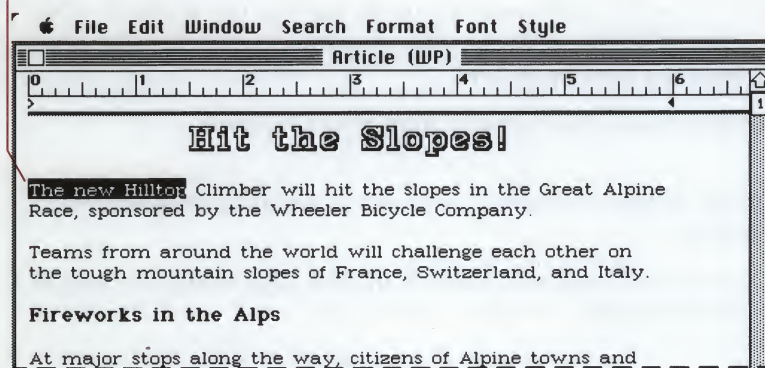
You can also select an entire document — without dragging. You may want to do this to change the font or format all the way through.

- Choose Select All from the Edit menu.

Works selects all the text and pictures in the document.

If you decide your selection doesn't cover exactly what you want, you can extend or reduce the selection.

Original selection



To select by dragging

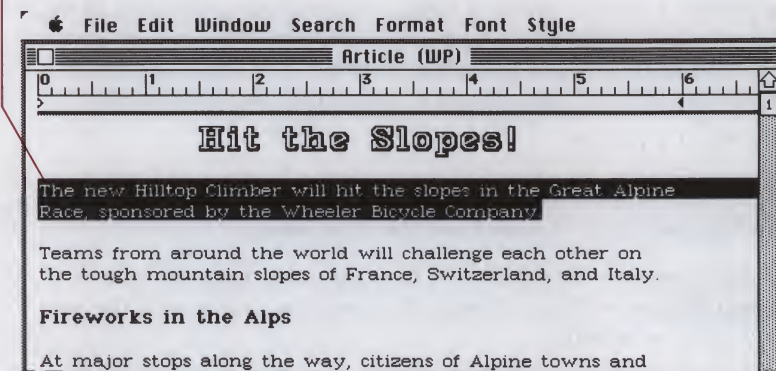
To select a picture

To select an entire document

To change a selection

- Hold down the Shift key and click or drag at the side of the selection to extend or reduce it.

To extend the selection, position the pointer at the end of the original selection. Hold down the Shift key and the mouse button, and click or drag until your selection is complete.



Deleting

To remove something from a document, you delete it. You can delete single characters with the Backspace key, or select any amount of text and delete it with the Cut or Clear command from the Edit menu or with the Backspace key. You can undo any of these actions with the Undo command from the Edit menu.

Sometimes you may want to delete a single character by backspacing.

- 1 Position the insertion point to the right of the character you want to delete.
- 2 Press the Backspace key.

Works removes the character from your document.

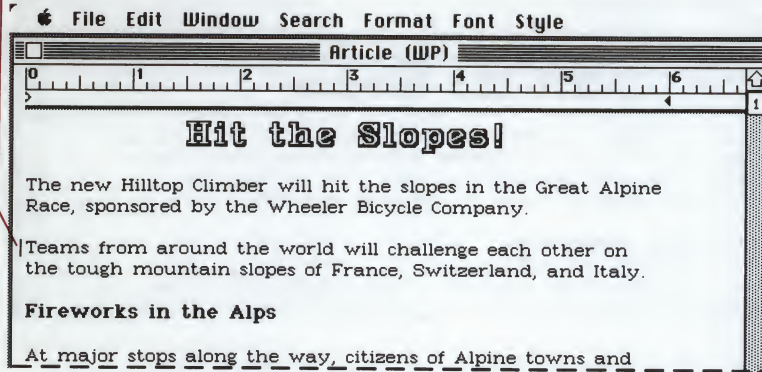
To delete a single character

To delete a blank line

You can delete a blank line to close up the space between two paragraphs.

- 1 Position the insertion point at the left edge of the first line of the paragraph you want to move back.

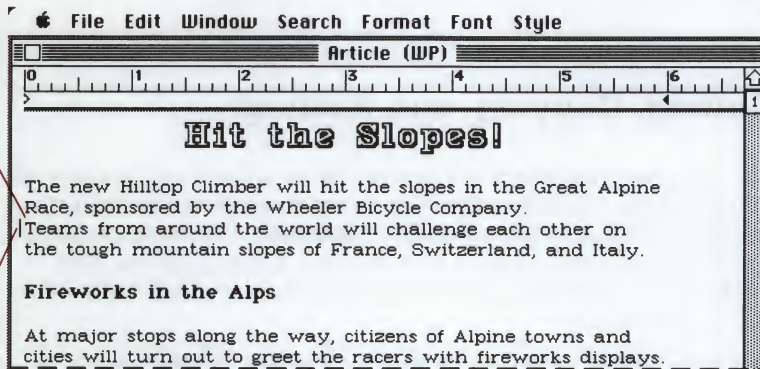
Insertion point



- 2 Press the Backspace key.

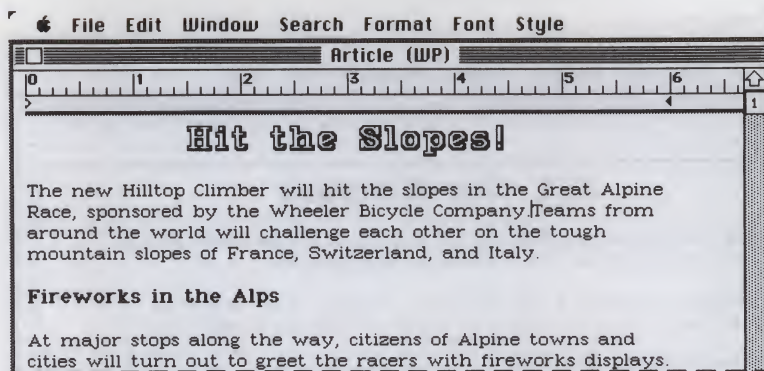
Works deletes the blank line between the two paragraphs.

The blank line is deleted.



Insertion point

You can press the Backspace key twice to join two paragraphs into one.



To delete a selection

To delete text, you first need to select it.

- 1 Select whatever you want to delete.
- 2 Press the Backspace key or choose Cut or Clear from the Edit menu.

Works removes the selection from your document. If you chose Cut, Works puts your selection on the Clipboard.

Cutting, Copying, and Pasting

The Cut command takes a selection out of its current location and puts it on the Clipboard. The Copy command leaves the selection where it is, but also puts it on the Clipboard. The Paste command copies the contents of the Clipboard into a new location. The Clipboard is a place in your Macintosh's memory that holds information temporarily.

To cut a selection

You can cut a selection to move it to another location or to delete it entirely.

To cut a selection:

- 1 Select the information you want to cut.
- 2 Choose Cut from the Edit menu.

The selection remains on the Clipboard until you cut or copy another selection. Turning off the computer erases the Clipboard. If you try to cut a bigger selection than Works has space for in memory, Works tells you so you can select a smaller portion.

You can copy a selection to put the same information in other places.

To copy a selection:

- 1 Select the information you want to copy.
- 2 Choose Copy from the Edit menu.

The selection remains on the Clipboard until you cut or copy another selection. Turning off the computer erases the Clipboard. If you try to copy too much, Works tells you so you can select a smaller portion.

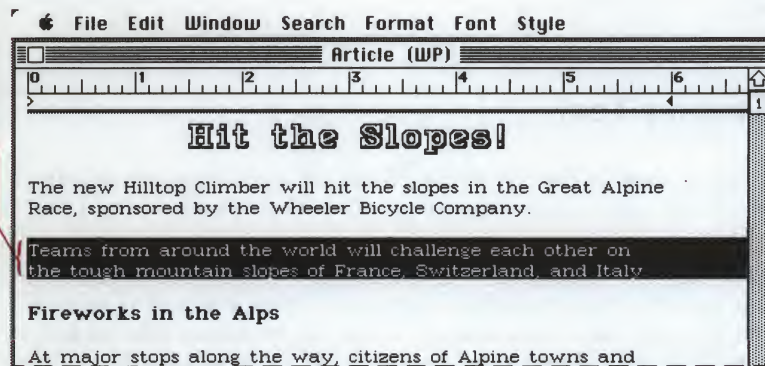
You paste the contents of the Clipboard into a location you choose in a document. Once you have cut or copied a selection to the Clipboard, you can paste it into as many locations as you want.

Each time you cut or copy information, the new selection replaces the old one on the Clipboard. Turning your Macintosh off erases the Clipboard. So if you want to paste a selection that you've cut or copied to the Clipboard, you should do so before cutting or copying anything else, and before turning your computer off.

To paste a selection:

- 1 Cut or copy a selection to the Clipboard.

Selected text

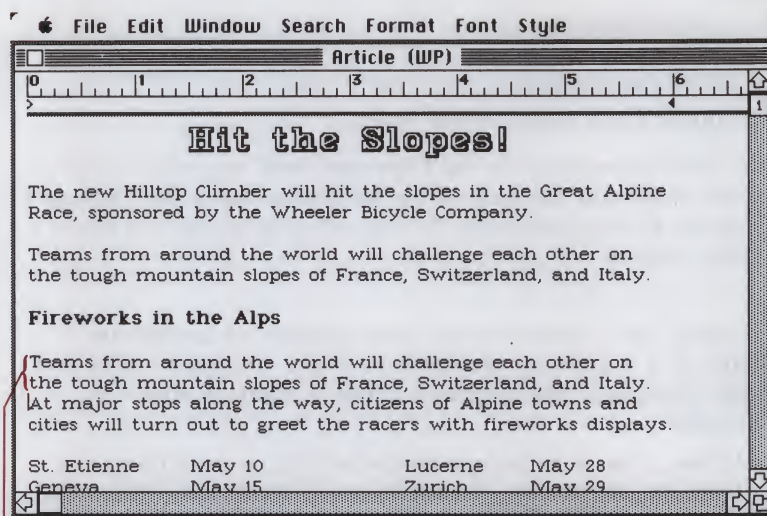


- 2 Move the insertion point to where you want to paste the text.

To copy a selection

To paste a selection

- 3 Choose Paste from the Edit menu.



Pasted text

You can repeat steps 2 and 3 as many times as you want.

You can cut and paste between documents, as well as within a document. When you paste pictures, you can also change their sizes. For more information, see Chapter 20, "Moving Information Between the Tools."

Finding Text

If you're looking for a word or phrase, or want to move quickly to specific text within a document, the Word Processor can find it for you.

To find text

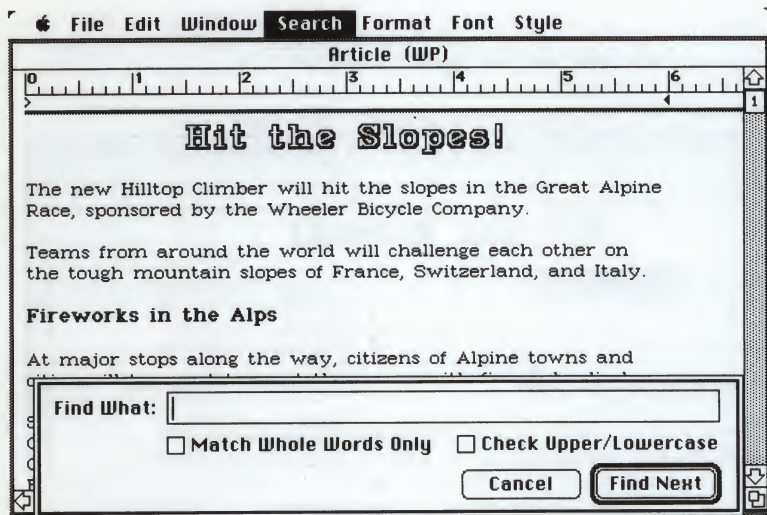
With the Find command, Works finds all occurrences of the text you specify. This can include instances where the text is embedded in other text. For example, if you tell Works to find "able", it will highlight those four characters in "valuable". If you want Works to ignore such occurrences, click the Match Whole Words Only option.

Also, Works ignores capitalization in the text you specify to be found. If you want to find only those occurrences of text where the capitalization is exactly as you type it in the text box, click the Check Upper/Lowercase option.

To find text:

- 1 Choose Find from the Search menu.

Works asks you what you want to find.



- 2 Type the characters you want to find.
- 3 Click one or both of the options if you want.
- 4 Click the Find Next button.

Works highlights the first occurrence of the string of characters if it is in the document. You'll see a message telling you if your string of characters isn't there.

If you want Works to look for another occurrence of the text you specified, click the Find Next button again.

If, while you are typing or reviewing your document, you come across a word that is misspelled, for example, you can select the word, and then choose Find. The selected word will appear in the Find What box, so you don't need to type it. You can then find any other occurrences of the misspelled word.

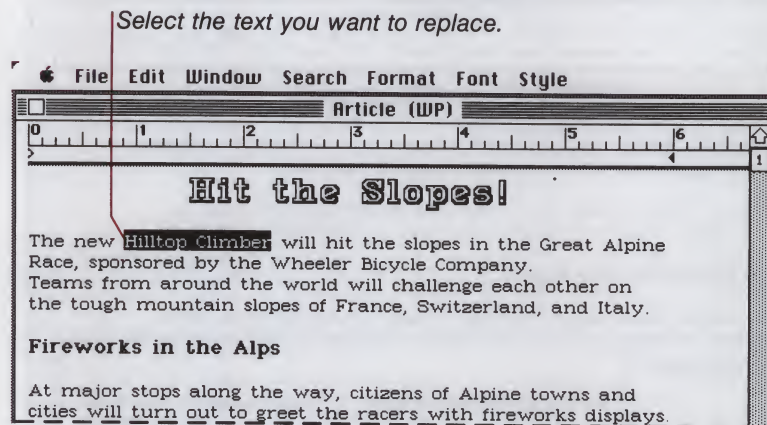
Replacing Text

You can replace selected text in a single location by typing over it. You can also have the Word Processor find a word or phrase for you in a document. Then, you can choose to replace every occurrence of it at once, or decide for each case individually.

To replace a single selection:

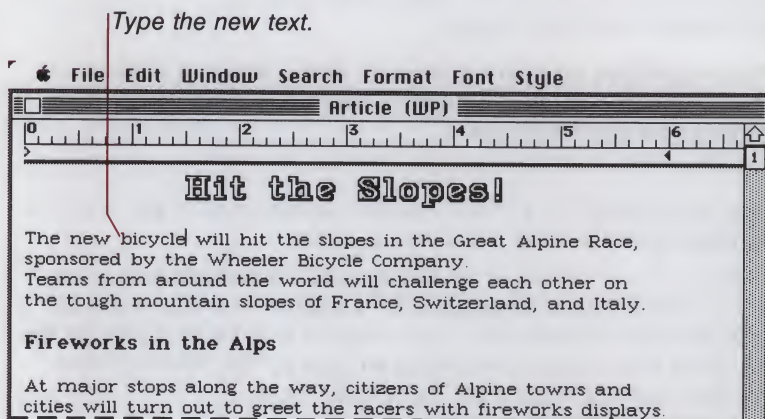
To replace a single selection

- 1 Select the text that you want to replace.



- 2 Type the replacement text.

The text you type replaces the text that you selected.



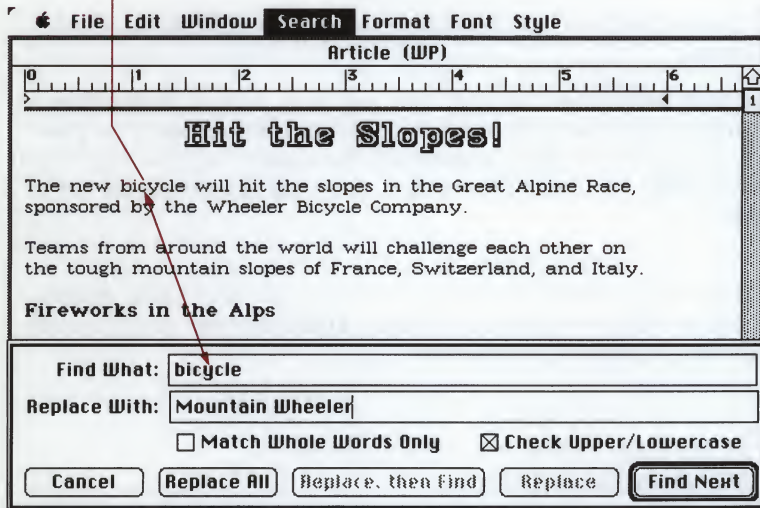
You can also replace the selection with the contents of the Clipboard by using the Paste command.

For more extensive search and replace actions, use the Replace command from the Search menu. The Replace command finds and replaces text. You can replace all occurrences of the text, or you can go through and selectively replace each occurrence, one at a time. As with the Find command, you can click options to specify whether Works searches for whole words only and/or for text with matching uppercase and lowercase letters. You can also select the text you want to replace before choosing the Replace command, then have it automatically appear in the Find What box.

To replace text:

- 1 Choose Replace from the Search menu.
A dialog box appears asking you what you want to find and what you want to replace it with.
- 2 Type the text you want to find.
- 3 Press the Tab key to move the insertion point into the second box, and type the replacement text.
- 4 Click one or both of the options if you want.

*The word "bicycle" will be replaced
with the words "Mountain Wheeler".*



- 5 Click one of the buttons to either start or cancel the search.

To find and replace text

Sometimes a word or phrase occurs often, but you want to replace it in only one place. Use the Find Next button to find successive occurrences of the specified text until you see the one you want to replace. Or use the same button to verify each occurrence of the specified text before you replace it. After each replacement, you can look for another occurrence.

There are several other buttons in the Replace dialog box. These tell Works to automatically replace all occurrences of the specified text, replace one occurrence and find the next, or replace only the occurrence you've just found.

For more information on the options and buttons in the Replace dialog box, see "Replace" in Chapter 5.

Changing the Appearance of Text

You can change the font, type style, and type size to add emphasis to or increase the impact of parts of your text. The font (such as Boston) is the design of the characters. Each font can have different type styles (such as bold) and type sizes (such as 10 point). You can change these characteristics as you're typing, or you can make a selection and then change them for the entire selection.

To change the font

To change the font of existing text:

- 1 Select the text you want to change.
- 2 Choose the font you want for your selection from the Font menu.

The Font menu lists the fonts that you have on the Works Program disk. You can add and remove fonts and font sizes on your disk using the Font Mover program that comes on your Macintosh System Disk. For more information, see your Macintosh owner's guide.

To change the type style or type size

Different type styles can change the way your text looks, making it bold or italic or some other shape. Different type sizes can add emphasis to parts of a document.

To change the type style or size of existing text:

- 1 Select the text that you want to change.
- 2 Pull down the Style menu.
- 3 Choose the style or size you want for your selection.

Not all sizes are recommended for all fonts. Recommended sizes for the font of the selected text appear in outline type on the Style menu. Other sizes appear in normal type. If a size is not recommended, you can still use it, but your text will look somewhat rougher than text in the recommended sizes.

To change the font, style, or size while you're typing:

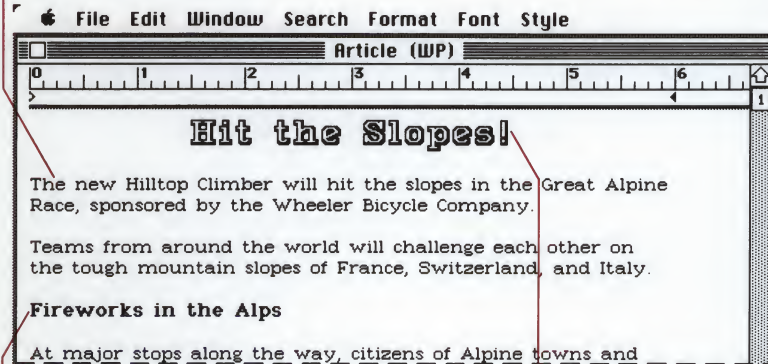
- 1 Select the font, style, or size that you want to use by choosing from the Font and Style menus.
- 2 Start typing.

Everything you type will have the characteristics you chose until you change them again. If you move the insertion point to text with different font characteristics, whatever you type will appear with those characteristics.

You can also change the type style as you type by using the Command-key equivalents displayed on the Style menu.

To change the font, style, or size while typing

Plain 10 point Boston font is the standard Word Processor typeface.



Bold type

Shadow type

4 Formatting a Document

The format of a document is how it appears on your screen or on paper. With Works, you can have the Word Processor do much of the formatting while you type. For example, you can specify that the first line of each paragraph should be indented half an inch. The Word Processor will then take care of the indenting—all you do is type and press the Return key at the end of each paragraph.

This chapter shows you how to:

- Change spacing.
- Change the justification of text.
- Use the ruler to adjust indentation.
- Set tabs and make columns and tables.
- Copy a format.
- Format and print a document with headers and footers.
- Draw lines, boxes, and circles.

You can have as many different formats as you want within a single document, but each format you choose will affect an entire paragraph. For example, if you double-space most of a report, but want to single-space and indent quotations, make the quotations separate paragraphs. Once you've set up a format, you can copy it whenever you want to use the identical format.

Changing Spacing

The Word Processor lets you use single, one-and-a-half, and double spacing.

To change the spacing in a document:

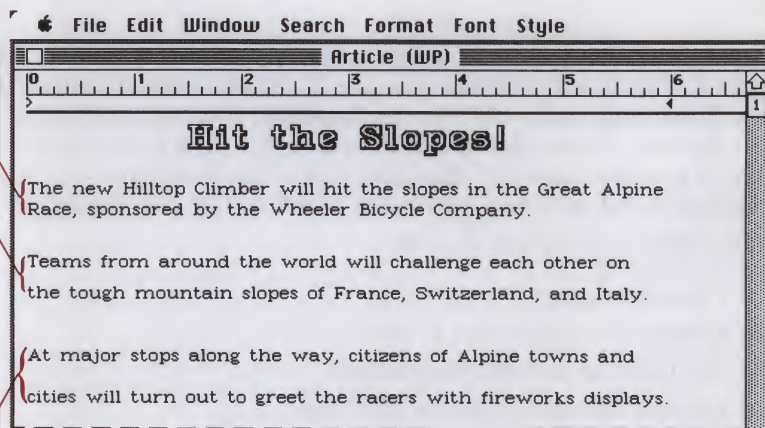
- 1 Position the insertion point in the paragraph you want to change, or select one or more paragraphs.
Use the Select All command from the Edit menu if you want to select the entire document.

To change spacing

- 2 Choose Spacing from the Format menu.
- 3 Click the type of spacing you want.
- 4 Click the OK button or press the Return key.

1-1/2 spacing

Single spacing



Double spacing

The spacing you set remains in effect until you change it. Because spacing is associated with individual paragraphs, if you move to a paragraph with different spacing, the menu will show whatever spacing is associated with that paragraph.

Changing Justification

Text is justified along one or both edges of the page. Most typewriters give you left-justified text. Most newspapers and magazines are fully justified (so that text in columns lines up evenly along both edges). The Word Processor lets you do left, right, and full justification. You can also center text, such as titles, captions, or lines of poetry.

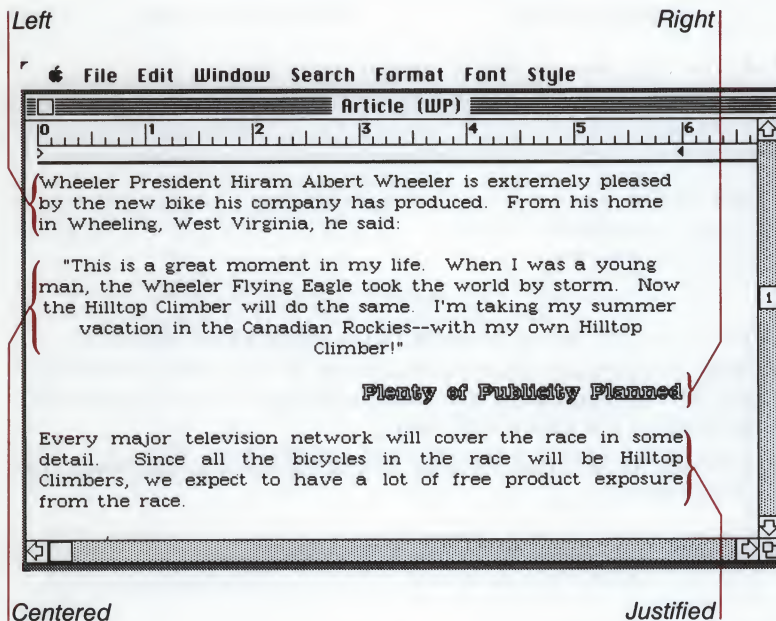
When you create a new document, your text will start out left-justified.

To change the justification:

- 1 Position the insertion point in the paragraph whose justification you want to change, or select one or more paragraphs. Use the Select All command from the Edit menu if you want to select the entire document.
- 2 Choose a type of justification from the Format menu.

Works changes the justification for the paragraph that contains the insertion point or for the paragraphs you've selected.

To change justification



The justification you set remains in effect until you change it. Because justification is associated with individual paragraphs, if you move the insertion point to a paragraph with different justification, the menu will show whatever justification is associated with that paragraph.

The Ruler

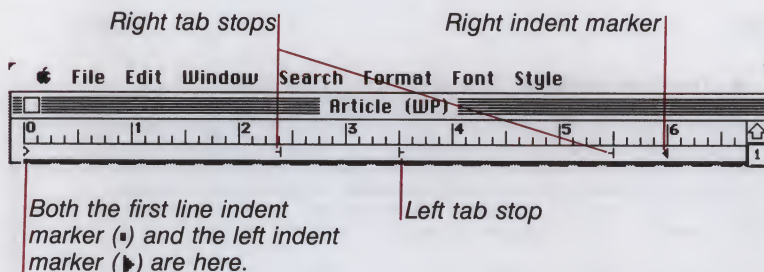
You use the ruler to set indentation and tab stops. Ruler settings apply to the first paragraph in a selection or the paragraph containing the insertion point. The ruler comes with standard settings indicated by markers. When you create a new document, the ruler is already showing.

To see the ruler

If the ruler isn't showing:

- Choose Show Ruler from the Format menu.

The ruler appears at the top of the window.



As you move the insertion point to paragraphs with different settings, you can see the markers change in the ruler. When you adjust settings with more than one paragraph selected, your new settings affect the entire selection.

To hide the ruler

If you'd like to see more of what you're typing, you can make the ruler disappear.

- Choose Hide Ruler from the Format menu.

Indenting Text

The Word Processor lets you set indentation on both the left and the right. You can set one indentation for the first line of a paragraph, and the same or a different indentation for the rest of the paragraph. If you indent only the first line of a paragraph, you get the standard paragraphs that you see in books. If you indent from both the left and right margins, you set off a portion of text for emphasis.

If you indent only the lines after the first line of a paragraph, you have what is called “hanging indentation.” This lets you prepare a standard bibliography, for example, or itemize points effectively with numbers or bullets.

You can automatically indent the first line of every paragraph, so that you don’t have to press the Tab key each time you start a new paragraph.

- 1 Choose Show Ruler from the Format menu if the ruler isn’t showing.

The ruler appears at the top of the window.

- 2 Drag the first line indent marker along the ruler to the position you want.

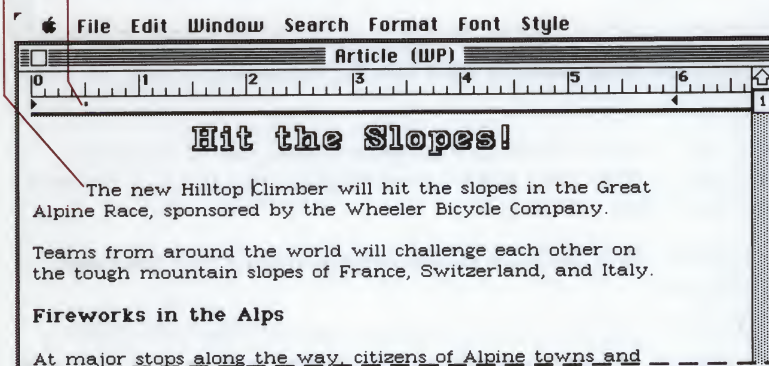
To see the first-line indent marker (■), drag the ▸ marker at the left edge of the ruler. You’ll see the box appear.

As you type, the first line of each paragraph will automatically be indented.

You can also use this method on previously typed text. Just select the paragraph(s) and follow the procedure above. To change every paragraph in the document use the Select All command from the Edit menu. The first line of each selected paragraph changes as soon as you release the button.

Only the first line of the paragraph is indented.

First line indent marker



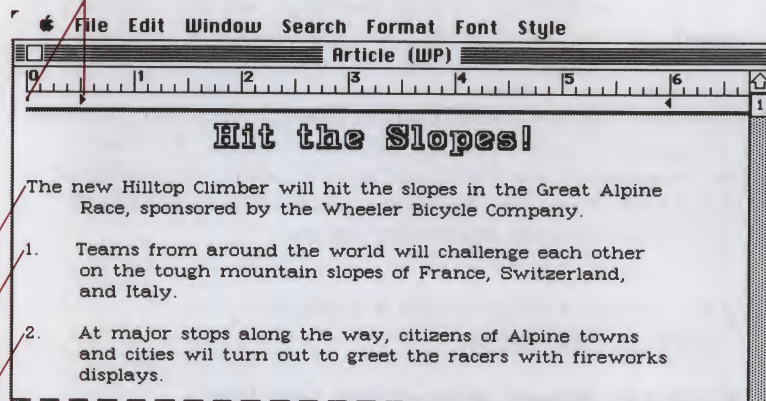
To indent the first line

To set hanging indentation

You can set up hanging indentation by indenting the lines following the first line of a paragraph. You can do this either before you begin to type or on previously typed text that you select.

- 1 Choose Show Ruler from the Format menu if the ruler isn't showing.
- 2 Drag the first line indent marker a little to the right, so you can see the entire left indent marker.
- 3 Drag the left indent marker to the position you want for the hanging indent.
- 4 Drag the first line indent marker back to the left edge of the ruler.

To set up hanging indentation, put the first line indent marker (■) to the left of the left indent marker (▼).



These three paragraphs all have hanging indentation.

To indent an entire paragraph

You can set an indentation that applies to an entire paragraph. You can do this either before you begin to type or on previously typed text that you select.

- 1 Choose Show Ruler from the Format menu if the ruler isn't showing.
- 2 Drag the first line indent marker to the position you want.
- 3 Drag the left indent marker to the same position.

Setting Margins

Indentations and margins are not the same in Works. When you set an indentation, that space is added to whatever margin you set with the Page Setup command from the File menu. For example, if the left margin is 1" and the left indent is .5", the text will begin 1.5" from the left edge of the paper.

Indentation affects text in the selected paragraph(s) or the paragraph containing the insertion point. You indent to move text in from the margins, which you set with the Page Setup command. For instructions on setting margins, see "Printing a Document" in Chapter 1. The margins you set apply to the entire document.

Note If the side margins you set conflict with the position of the indent markers, Works changes the right indent marker to a hollow triangle to alert you to the problem.

Setting and Using Tabs

Tabs let you skip across the page by measured amounts. Tabs are measured in inches rather than in number of characters, so that text lines up no matter what font, size, or style of type you're using.

If you want to type in two or more columns, you can set a left tab stop for each column after the first one, so that you don't have to type spaces to get to the proper location. Right tab stops help you align columns of numbers along a single digit.

Setting Tab Stops

In a new Word Processor document, tab stops are preset at every half inch on the ruler, but you can't see them. You can remove these by setting your own. When you set a tab stop, all preset tab stops to the left of the new one are lost.

You can set different tab stops for each paragraph you want to modify.

To see the tab stops on the ruler that correspond to a particular paragraph, select the paragraph containing tab stops.

Pressing the Tab key moves the insertion point to the right. When you move to a left tab stop, that tab stop determines the left edge of the next text you type.

Setting margins

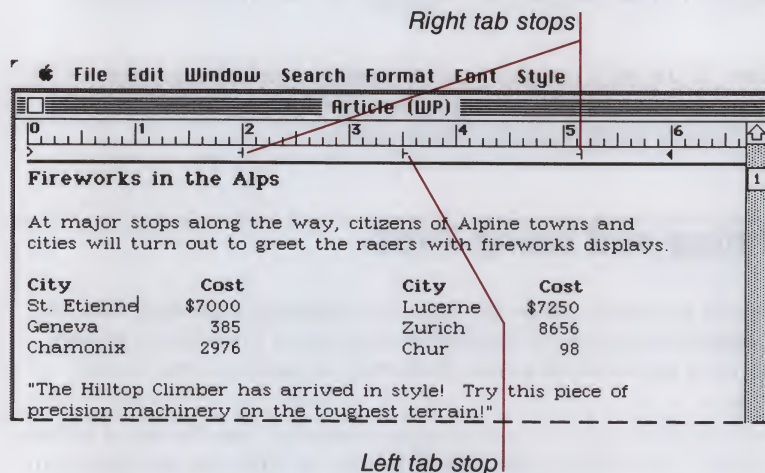
To set tab stops

Right tab stops anchor the right edge of text. They're most useful for aligning columns of numbers, so that you can type them easily.

To set tab stops:

- 1 Choose Show Ruler from the Format menu if the ruler isn't showing.
- 2 Position the pointer in the blank area below the ruler markings at each place you want to set a tab stop, and click once for a left tab stop and twice for a right tab stop.

To reverse a tab stop from right to left, or vice versa, just click it.



To move or remove a tab stop

If you want to change a tab stop's location, or just want to remove it, you can drag it.

To move a tab stop:

- Drag the tab stop to a new location.

When you release the mouse button, the text in the selected paragraph(s) or the paragraph containing the insertion point realigns under the new tab stop.

To remove a tab stop:

- Drag the tab stop down into the text.

When you release the mouse button, the tab stop disappears.

Using Tabs for Tables

By setting a series of tab stops, you can make a table. You can use tables to list facts or figures in several columns.

To make a table:

- 1** Set a left tab stop for each column of the table.
- 2** Move the insertion point to the left edge of the screen and press the Tab key.
Works aligns the insertion point with the first tab stop.
- 3** Type the first entry for the first line.
- 4** Press the Tab key to move to the second column and then type the next entry.
- 5** When you finish with the last entry of the first line, press the Return key.

To make a table

Copying a Format

If you have different sections throughout a document that require the same format, you can set the format for one paragraph and then copy that format to other paragraphs.

The formats you can copy are justification, indentation, tabs, and spacing.

To copy a format:

- 1** Position the insertion point anywhere in the paragraph whose format you want to copy.
- 2** Choose Copy Format from the Format menu.
- 3** Move the insertion point to anywhere within another paragraph.
- 4** Choose Paste Format from the Format menu.

Works changes the format in the second paragraph to match that of the first.

You can repeat steps 3 and 4 to copy the same format to as many paragraphs as you want. If you want to copy a format to several adjacent paragraphs, select them all before pasting the format.

To copy a format

Formatting an Entire Document

Some formatting options work on the printed document as a whole.

- You can set manual page breaks to keep related information together, or unrelated information apart.
- With headers and footers, you can repeat information about a document, such as the title or date, at the top and bottom of every page.
- You can include automatic page numbers in headers or footers.
- You can specify a title page at the beginning of a document on which headers and footers don't print.

Page Breaks

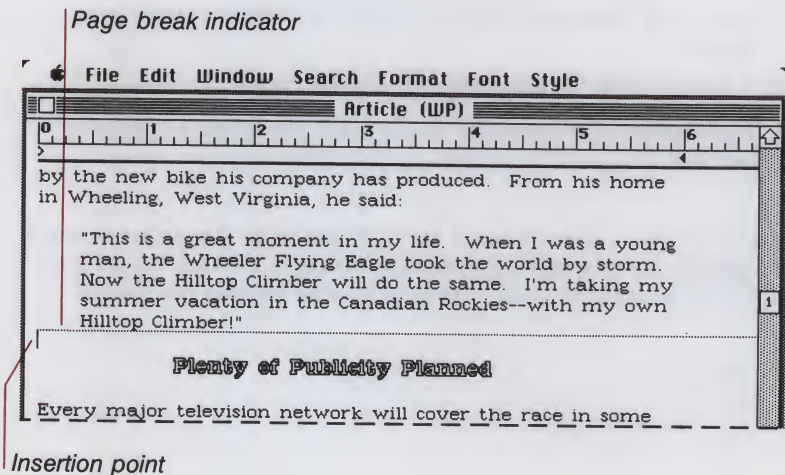
To set a page break

Works automatically sets page breaks in all documents. You can leave these as they appear, or change them with the Format menu.

To set a manual page break:

- 1 Move the insertion point to the line you want to be at the top of the page.
- 2 Choose Insert Page Break from the Format menu, or press Shift-Enter.

A dotted line appears just above the line containing the insertion point. When you set a manual page break, Works automatically repaginates the entire document from that point on.



If you decide not to break a page at a particular spot, you can remove the manual page break.

To remove a manual page break:

- 1 Click anywhere in the line just below the dotted line.
- 2 Choose Remove Page Break from the Format menu.

You cannot remove an automatic page break; however, you can force Works to adjust the position of automatic page breaks by inserting manual page breaks so that Works repaginates the document.

Headers and Footers

Headers and footers contain information that helps you to identify a document. They are not displayed on the screen, but appear only when you print a document.

Headers and footers often contain the title of the document, the name of the author, and the date. Or, a header might center the word "Confidential" at the top of every page.

You can create headers and footers in the Word Processor in any font, size, or style. Headers and footers can have text aligned at the left, right, or center, and can include page numbers, too.

To tell Works to include the date, time, or page number, or to align text in a particular way, you use a set of formatting commands. For a list of these commands, see "Page Setup" in Chapter 2.

To set a header or footer:

- 1 Choose Page Setup from the File menu.
The lower half of the Page Setup dialog box has two text boxes in which you can type headers and footers. The insertion point is in the box for a header.
- 2 Type the information for the header, including any formatting commands, such as &L or &D.
- 3 Move the insertion point to the Footer box and type the information for the footer.
- 4 Click the OK button or press the Return key.

When you print the document, the formatting commands will not appear, but Works will align the text as you specified, and include the page number, date, and time, if you included them.

To remove a manual page break

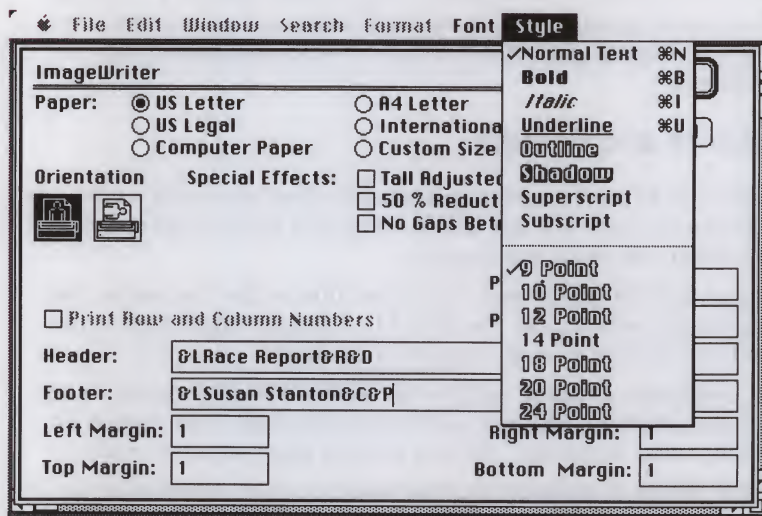
To set a header or footer

To change the typeface of a header or footer

In the Word Processor, but not in other Works tools, you can use any available font, style, or size for header and footer text.

To change the typeface of a header or footer:

- 1 Choose Page Setup from the File menu.
- 2 Choose a font from the Font menu.
- 3 Choose a style and size from the Style menu.



- 4 Click the OK button or press the Return key.

When you print your document, the header and footer will be in the font, size, and style you've selected.

Setting Consecutive Page Numbers

You may want to break a very large project into parts. You'll find it easier to switch between smaller documents than to move around in a single very large document. You can give each part its own header and footer for identification.

In the Word Processor, but not in the other tools, you can print a series of documents that each start with a beginning page number that you specify.

- 1 From the Word Processor, choose Print from the File menu to print the first document in the series.
- 2 Activate the next document you want to print.
- 3 Choose Set Page # from the Format menu.
- 4 In the dialog box, set the starting page number for the next document in the series. (Just add one to the last page number of the document you just printed.)
- 5 Choose Print to print the second document in the series.

Repeat steps 2 through 5 for each succeeding document in the series.

Setting a Title Page

You may not want to have headers and footers on the first page of a document. By designating the document as having a title page, you tell Works to wait until the second page before printing any headers and footers.

To set a title page:

- Choose Title Page from the Format menu.

Works starts the headers and footers on the second page. It does not change the format of the first page in any other way.

To set consecutive page numbers

To set a title page

Drawing Lines and Shapes

You can use lines and shapes to make your written documents look more distinctive. Insert thin vertical lines between the columns of a newsletter. Create organizational charts, or put a box around a key article. Frame charts, photographs, and illustrations. Keep track of revisions by crossing out deletions and circling insertions.

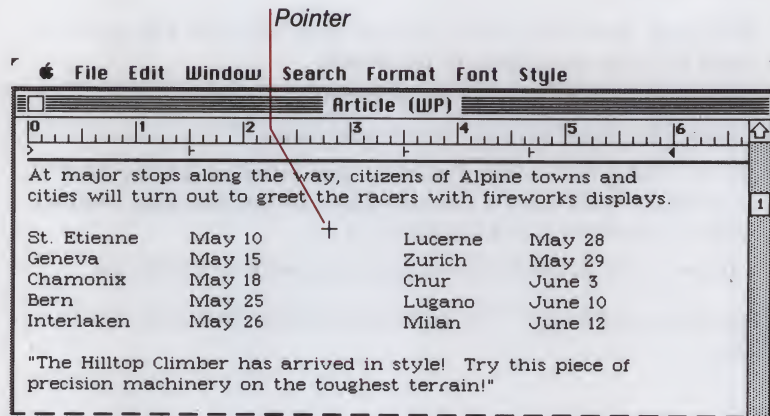
Using the Word Processor's drawing capability, you can draw lines, boxes, rounded boxes, and circles in three line thicknesses. You can draw right over or next to text and pictures.

To draw a line or shape:

- 1 Choose Draw from the Edit menu.
- 2 Select a line width or a shape.
- 3 Click the OK button.

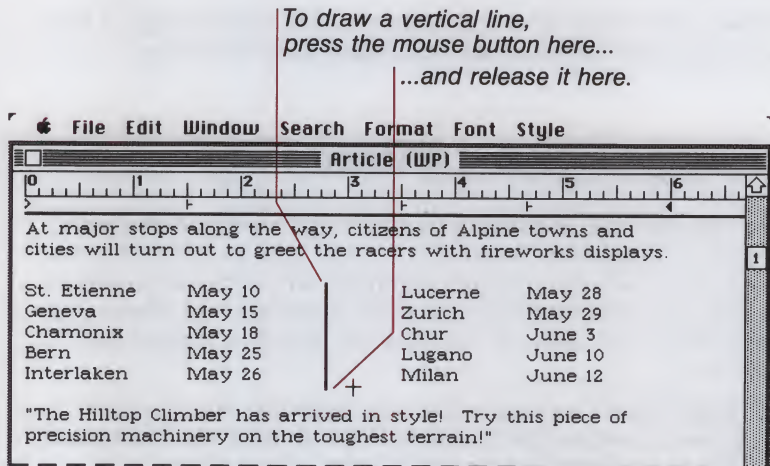
To draw a line or shape

The pointer turns into a cross (+) when you move it into the active window.



For lines:

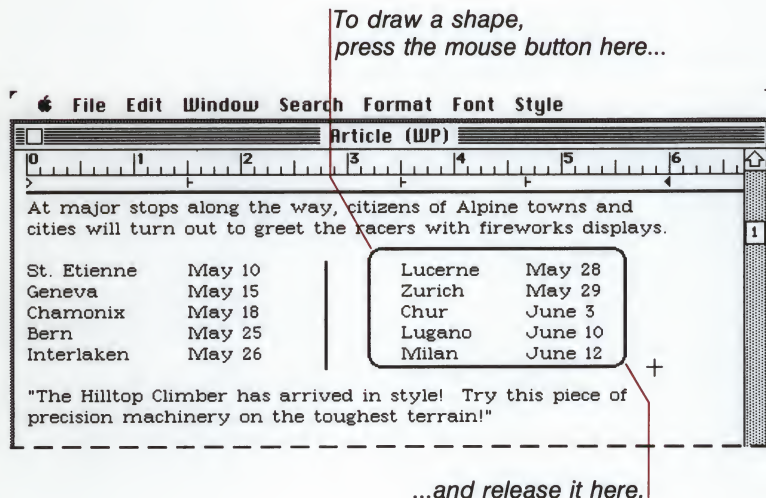
- 1 Position the cross where you want the line to begin.
- 2 Press the mouse button and drag to draw a line.
- 3 Release the mouse button to end the line.



For shapes:

- 1 Put the cross where you want to anchor any corner of your box or circle.

- 2 Hold down the mouse button and drag in any direction.
- 3 Release the mouse button when you're satisfied with the size of the box or circle.



When you're finished drawing, you have to turn off Draw before you can type or edit text.

- Choose Draw Off from the Edit menu.

Now you can type within or over anything you've drawn.

When you want to move, cut, or size a line or shape you've drawn, you have to select it. Works treats these objects just like regular pictures or charts.

To select a Draw pattern:

- 1 Click on or to the left of the pattern.
- 2 Choose Select Picture from the Edit menu.

Works puts a blinking dashed line around the selected pattern. You can cut, copy, paste, move, or size selected patterns. If there is more than one picture in the window, keep choosing Select Picture, without moving the insertion point, until the pattern you want is selected.

For more information on working with pictures, see "Editing Pictures" in Chapter 20.

To turn off Draw

To select a Draw pattern



DESCRIPTION OF THE INVENTION

The present invention relates to a method and apparatus for the treatment of water, and more particularly to a method and apparatus for the treatment of water by the use of a chemical agent.

It is well known that water, as it exists in nature, is often contaminated with various impurities, and it is therefore necessary to treat water before it can be used for drinking or other purposes. One of the most common methods of treating water is by the use of a chemical agent, such as chlorine or iodine, which is added to the water and allowed to react with the impurities.

The present invention is a method and apparatus for the treatment of water by the use of a chemical agent, which is designed to overcome the deficiencies of the known methods. The method of the present invention is characterized by the use of a chemical agent which is added to the water in a controlled manner, and the apparatus of the present invention is designed to facilitate the addition of the chemical agent to the water.

The present invention is a method and apparatus for the treatment of water by the use of a chemical agent, which is designed to overcome the deficiencies of the known methods. The method of the present invention is characterized by the use of a chemical agent which is added to the water in a controlled manner, and the apparatus of the present invention is designed to facilitate the addition of the chemical agent to the water.

5 Word Processor Command Reference

The Apple, File, and Window menus are identical for all Microsoft Works tools. For information on these menus, see Chapter 2, "Common Tasks Command Reference."

This chapter discusses all the shaded commands shown below. The Print Merge command is included here because you use it for a Word Processor document.

File	
New...	
Open...	%O
.....	
Close	
Save	%S
Save As...	
Delete...	
.....	
Page Setup...	
Print...	%P
Print Window	
Eject Page	
Print Merge...	
.....	
Quit	%Q

Edit	
Undo	%Z
.....	
Cut	%H
Copy	%C
Paste	%U
Clear	
.....	
Select All	
Select Picture	
.....	
Draw...	%D
.....	
Prepare to Merge...	%M
Show Field Data	

Search	
Find...	%F
Replace...	%R
.....	
Go To Page #...	%G

Format	
Hide Ruler	
.....	
Spacing...	
.....	
✓Left	
Centered	
Right	
Justified	
.....	
Copy Format	%K
Paste Format	%Y
.....	
Insert Page Break	
Title Page	
Set Page # ...	

Font	
✓Boston	
Monaco	
Geneva	
Chicago	
Athens	

Style	
✓Normal Text	%N
Bold	%B
<i>Italic</i>	%I
<u>Underline</u>	%U
Outline	
Shadow	
Superscript	
Subscript	
.....	
9 Point	
✓10 Point	
12 Point	
14 Point	
18 Point	
20 Point	
24 Point	

You can invoke some Works commands from the keyboard, as well as by using the mouse. The available Command-key combinations are shown on the menus and in Appendix D.

An alphabetical list of commands appears in the index under "Command."

The File Menu

The File menu is described in detail in Chapter 2, "Common Tasks Command Reference." The Print Merge command is included here because it applies only to the Word Processor.

Print Merge

File	
New...	
Open...	⌘O
<hr/>	
Close	
Save	⌘S
Save As...	
Delete...	
<hr/>	
Page Setup...	
Print...	⌘P
Print Window	
Eject Page	
Print Merge...	
<hr/>	
Quit	⌘Q

Print Merge

The Print Merge command is available only for Word Processor documents into which at least one placeholder has been entered with the Prepare to Merge command.

After all placeholders have been entered with the Prepare to Merge command, the merging process begins when you choose Print Merge.

When you choose Print Merge, Works displays the Print dialog box.

If a Database document you specified with Prepare to Merge is not open, or if a field name you specified with Prepare to Merge cannot be found, Works displays an alert box, and cancels the Print Merge operation.

You can use Record Selection rules in the Database if you want to merge with only part of your Database document.

For more information, see "Prepare to Merge" in this chapter, and Chapter 21, "Merging: Creating Mailing Labels, Form Letters, and Forms."

The Edit Menu

The first five commands on the Edit menu are common to all tools in Works. For information on these commands, see “The Edit Menu” in Chapter 2.

This section explains additional Edit menu commands that are available in the Word Processor.

Select All

The Select All command selects the entire contents of a document.

This is useful when you want to change the font or set an indent for an entire document.

Select All

Edit	
Undo	⌘Z
Cut	⌘H
Copy	⌘C
Paste	⌘V
Clear	
Select All	
Select Picture	
Draw...	⌘D
Prepare to Merge...	⌘M
Show Field Data	

Select Picture

The Select Picture command selects a Draw pattern, a chart, or a picture.

Use Select Picture when you want to cut, copy, paste, or size any of the following: a line or shape created with the Word Processor’s Draw command, a chart from a Spreadsheet document, or any other graphic material imported from a program such as MacPaint. Graphics from outside Works are imported via the Scrapbook, and are identified there as “PICT.”

When you paste a picture into a new location, you can enter text anywhere in and around the picture; for example, you could type a label for a chart. However, if you use Select Picture to move the same picture once again, only the original picture will be selected. The text you added in the Word Processor remains where it is, unless you select and move it separately.

To select a picture, click on or to the left of the picture, and choose Select Picture. If there is more than one picture in the same area, keep choosing Select Picture, without moving the insertion point, until the picture you want is selected.

Select Picture

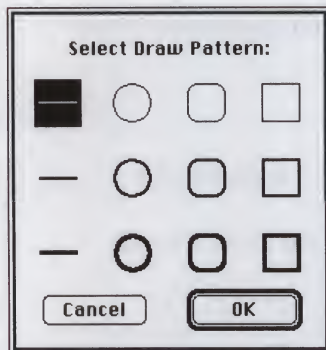
Edit	
Undo	⌘Z
Cut	⌘H
Copy	⌘C
Paste	⌘V
Clear	
Select All	
Select Picture	
Draw...	⌘D
Prepare to Merge...	⌘M
Show Field Data	

Draw Draw Off

Edit	
Undo	%Z
Cut	%H
Copy	%C
Paste	%V
Clear	
Select All	
Select Picture	
Draw...	%D
Prepare to Merge...	%M
Show Field Data	

Draw/Draw Off

The Draw command draws lines, circles, and boxes in a Word Processor document.



To select a shape or line width in the dialog box, either click it and click OK, or double-click it. Works returns to the Word Processor document and changes the pointer to a cross (+).

As you drag the pointer in your document, Works draws the shape or line you chose.

When you choose Draw, the menu item automatically changes to Draw Off. If you wish to change to another shape or line width, choose Draw Off, then choose Draw again and click the appropriate shape. To return to regular text processing, choose Draw Off.

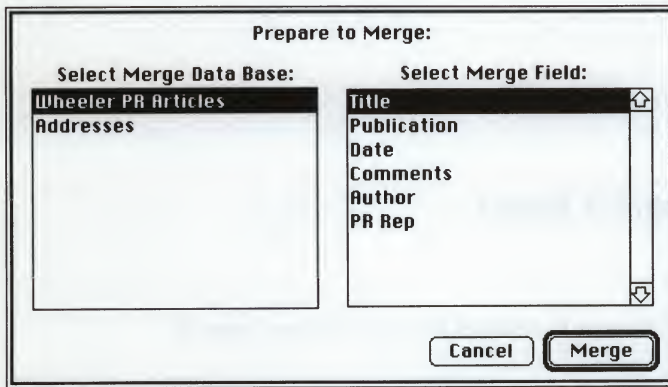
To delete any shape you've drawn, select it with the Select Picture command, then cut it. Select Picture does not affect text within the picture selection.

For more information on working with shapes, see "Editing Pictures" in Chapter 20.

Prepare to Merge

The Prepare to Merge command specifies information to be merged into a Word Processor document from a Database document. To print the merged information, use the Print Merge command from the File menu.

Before you choose Prepare to Merge, be sure that the Database document from which you want to merge data is open. When you choose Prepare to Merge, Works displays a dialog box that asks you to select from which Database document and from which field the data is to be taken.



Select Merge Data Base From the list of Database documents in the list box on the left, select the document from which the merge data is to be taken.

The field names of the Database document you select will then appear in the list box on the right.

Select Merge Field Select the field name from which the merge data is to be taken.

When you click the Merge button, a placeholder — a rectangle containing the Database document name and the field name — is inserted into your Word Processor document at the insertion point.

If you close a specified Database document, delete a specified field, or change a specified field name, Works displays a message — “NOT ON DESKTOP” or “FIELD NOT IN DB” — in the appropriate placeholders.

Prepare to Merge

Edit	
Undo	⌘Z
Cut	⌘H
Copy	⌘C
Paste	⌘V
Clear	
Select All	
Select Picture	
Draw...	⌘D
Prepare to Merge...	⌘M
Show Field Data	

Show Field Data Show Field Names

Edit	
Undo	⌘Z
Cut	⌘H
Copy	⌘C
Paste	⌘V
Clear	
Select All	
Select Picture	
Draw...	⌘D
Prepare to Merge...	⌘M
Show Field Data	

Show Field Data/Show Field Names

The Show Field Data command displays the contents of the fields in the first record to be merged into a Word Processor document just as they will be shown in the final document.

When you choose Show Field Data, the menu item changes to Show Field Names.

When you choose Show Field Names, Works again displays the placeholders.

Find

Search	
Find...	⌘F
Replace...	⌘R
Go To Page #...	⌘G

The Search Menu

Find

The Find command searches for text that you specify.

Find What:	<input type="text"/>
<input type="checkbox"/> Match Whole Words Only	<input type="checkbox"/> Check Upper/Lowercase
<input type="button" value="Cancel"/>	<input type="button" value="Find Next"/>

Find What Type the text you want to search for. This can be as short as a single character or as long as 80 characters. You can search for any alphanumeric characters and all symbols on the Macintosh keyboard.

If you select any occurrence of the text before you choose Find, it will appear in the Find What box.

Match Whole Words Only Click this option to find only those occurrences of the text that have leading and trailing word breaks (spaces, punctuation, and tabs). This tells Works to find only those occurrences of the specified text not embedded in other text.

Check Upper/Lowercase Click this option to find only those occurrences of the text having uppercase and lowercase characters that match what you type.

When you click the Find Next button, Works finds and selects the first occurrence of the specified text after the insertion point. The search continues to the end of the document, then goes to the beginning and searches forward to the point at which the search began.

To find additional occurrences of the specified text, click the Find Next button after each occurrence is selected.

To cancel the search at any time, click the Cancel button.

If Works cannot find the specified text in your document, it displays an alert box.

The next time you choose Find, the last text you specified is selected in the Find What box unless different text is selected in the document. If that is the text you want, click the Find Next button. Otherwise, type the new text you want to search for.

Replace

The Replace command finds and replaces specified text — either selective occurrences of the text or all occurrences.

Find What:

Replace With:

☐ Match Whole Words Only ☐ Check Upper/Lowercase

Cancel Replace All Replace, then Find Replace Find Next

Find What Type the text you want to search for. This can be as short as a single character or as long as 80 characters. You can search for any alphanumeric characters and all symbols on the Macintosh keyboard.

If you select any occurrence of the text before you choose Replace, it will appear in the Find What box.

Replace With Type the replacement text, up to 80 characters.

Match Whole Words Only Click this option to find only those occurrences of the text that have leading and trailing word breaks (spaces, punctuation, and tabs). This tells Works to search for only those occurrences of the specified text not embedded in other text.

Replace

Search

Find... ⌘F

Replace... ⌘R

Go To Page #... ⌘G

Check Upper/Lowercase Click this option to find only those occurrences of the text having uppercase and lowercase characters that match what you type.

Works starts the search at the insertion point. The search continues to the end of the document, then goes to the beginning and searches forward to the point at which the search began.

Replace All Click this button to replace all occurrences of the specified text in the document.

Replace, Then Find Click this button to replace the selected text and then go to the next occurrence of the specified text. Works selects the next occurrence, but does not replace it.

Replace Click this button to replace the current selection only.

Find Next Click this button either to start a search or, if an occurrence of the specified text has been found, to leave it as is and search for the next occurrence.

To cancel the search at any time, click the Cancel button.

As you selectively find and replace text, Works scrolls automatically to the next occurrence of the specified text. If Works cannot find the specified text in the document, it displays an alert box.

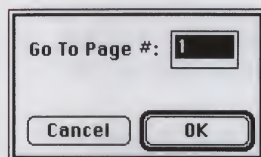
The next time you choose Replace, the last text you specified is selected in the Find What box unless different text is selected in the document. If that is the text you want, click a button to start the search. Otherwise, type the new text you want to search for.

Go To Page

Search	
Find...	⌘F
Replace...	⌘R
Go To Page #... ⌘G	

Go To Page

The Go To Page # command scrolls a document to the page you specify and places the insertion point at the beginning of the first line.

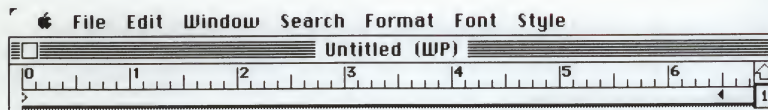


Works proposes the page number currently displayed in the scroll box. Type the number of the page you want to find, then click OK.

The Format Menu

Show Ruler/Hide Ruler

The Show Ruler command displays the ruler.



The ruler is calibrated in inches. The indent markers and tab stops reflect the settings for either the first paragraph of a selection or the paragraph containing the insertion point. If you make a change to the indent markers or tab stops on the ruler, the change applies to all of the selected paragraphs or the paragraph containing the insertion point. You can move indent markers, and insert, delete, and move tab stops on the ruler.

When the ruler is displayed on the screen, the Show Ruler command on the menu changes to Hide Ruler. Hide Ruler allows you to display approximately two additional lines of text in your document window.

The ruler displays the following information about how a paragraph is formatted:

- The amount of space the first line is indented from the left margin. This is indicated by a small solid box.
- The amount of space all lines, subsequent to the first, are indented from the left margin. This is indicated by a small solid triangle pointing right.
- The amount of space all lines of a paragraph are indented from the right margin. This is indicated by a small solid triangle pointing left.

Note Margins are defined and displayed in the dialog box of the Page Setup command from the File menu.

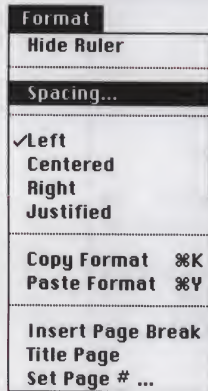
- The position of left tab stops. Initially, there are left tab stops every 0.5". When you insert any new tab stops, all preset tabs to the left of the new tab stop are lost. To insert a left tab stop, point to a position in the blank area below the ruler markings and click.

Show Ruler Hide Ruler



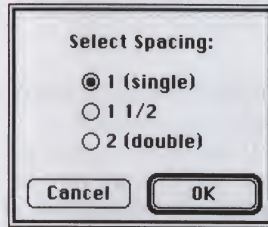
- The position of right tab stops. Initially, there are no right tab stops. To insert one, point to a position in the blank area below the ruler markings and double-click. To change a tab stop from right to left, or vice versa, click it.

Spacing



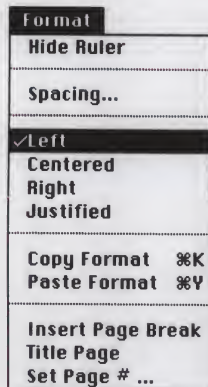
Spacing

The Spacing command controls the line spacing in a document.



When you click the OK button, Works adjusts the selected paragraphs, or the paragraph containing the insertion point, to the spacing you chose.

Left Centered Right Justified



Left/Centered/Right/Justified

These formatting commands position selected paragraphs, or the paragraph containing the insertion point, between the indent markers.

- | | |
|-----------|--|
| Left | All lines are aligned with the left indent marker. |
| Centered | Each line is centered between the indent markers. |
| Right | All lines are aligned with the right indent marker. |
| Justified | All lines start aligned with the left indent marker and end aligned with the right indent marker. Spaces between complete words in each line are expanded evenly to give the appearance of evenly spaced text. |

In all four cases, only complete words are placed on a line.

Copy Format/Paste Format

The Copy Format and Paste Format commands copy the format of one paragraph to another paragraph or to a range of paragraphs.

To copy a format, position the insertion point anywhere in the paragraph whose format you want to copy, then choose Copy Format.

To paste the format, position the insertion point anywhere in the paragraph you want to reformat, or select a range of paragraphs. Then choose Paste Format.

The following formatting information is copied with Copy Format and Paste Format:

- Left and right indents
- First line indent (of a paragraph)
- Left and right tab stops
- Spacing
- Justification

Copy Format Paste Format

Format	
Hide Ruler	
Spacing...	
✓Left	
Centered	
Right	
Justified	
Copy Format	⌘K
Paste Format	⌘Y
Insert Page Break	
Title Page	
Set Page # ...	

Insert Page Break/Remove Page Break

The Insert Page Break command inserts manual page breaks for a printed document.

With Works, pagination is automatic. This command, however, allows you to manually insert page breaks in places other than where pages would automatically break.

When you choose Insert Page Break, Works puts a thin dotted line immediately above the insertion point to indicate the page separation. When you insert a manual page break, Works automatically repaginates the entire document, starting at that point.

When you put the insertion point in the line following a manual page break, the command changes on the menu to Remove Page Break. If you choose this command, Works removes the manual page break indicator.

Insert Page Break Remove Page Break

Format	
Hide Ruler	
Spacing...	
✓Left	
Centered	
Right	
Justified	
Copy Format	⌘K
Paste Format	⌘Y
Insert Page Break	
Title Page	
Set Page # ...	

Title Page

Format	
Hide Ruler	
Spacing...	
<input checked="" type="checkbox"/> Left Centered Right Justified	
Copy Format	%K
Paste Format	%Y
Insert Page Break	
Title Page	
Set Page # ...	

Title Page

The Title Page command tells Works not to print headers and footers on the first page of a document. It does not affect in any other way the format of existing text on the first page.

When you choose Title Page, the command appears with a checkmark beside it on the menu.

To print headers and footers on the first page, choose Title Page when it is checked. Works removes the checkmark.

Set Page

Format	
Hide Ruler	
Spacing...	
<input checked="" type="checkbox"/> Left Centered Right Justified	
Copy Format	%K
Paste Format	%Y
Insert Page Break	
Title Page	
Set Page # ...	

Set Page

If you specify in the Page Setup dialog box that page numbers are to be included in a header or footer box, the Set Page # command tells Works what number to begin numbering pages with.

Set Starting Page #:

In the Set Starting Page # box, type the page number for the first printed page. Works proposes 1. Then click OK.

The Font Menu

The commands in the Font menu tell Works which fonts to use to display and print a document. The preset font for the Works Word Processor is Boston 10.

You can change fonts before you type text by selecting the font you want and then typing the text. Or you can change the font of text already in your document. Just select the text, then choose a font. The font of the selection will be changed, but the styles and sizes will remain unchanged.

You change styles and sizes with the Style menu.

Note If you are using a LaserWriter printer, you should replace the Boston font with a font recommended for the LaserWriter, such as Times or Helvetica. For more information, see your LaserWriter manual.

To save space on your disk, you should use the Font Mover to remove those fonts and sizes that you don't use. For more information, see your Macintosh owner's guide.

Font	
<input checked="" type="checkbox"/>	Boston
<input type="checkbox"/>	Athens
<input type="checkbox"/>	Monaco
<input type="checkbox"/>	Geneva
<input type="checkbox"/>	Chicago

The Style Menu

The Style menu commands tell Works which type styles (such as Bold or Underline) and type sizes to use in displaying and printing a document.

The sizes shown in outline type on the menu are those recommended for the font currently selected on the Font menu. You can choose any size for any font, but those that are not recommended will produce a rougher appearance.

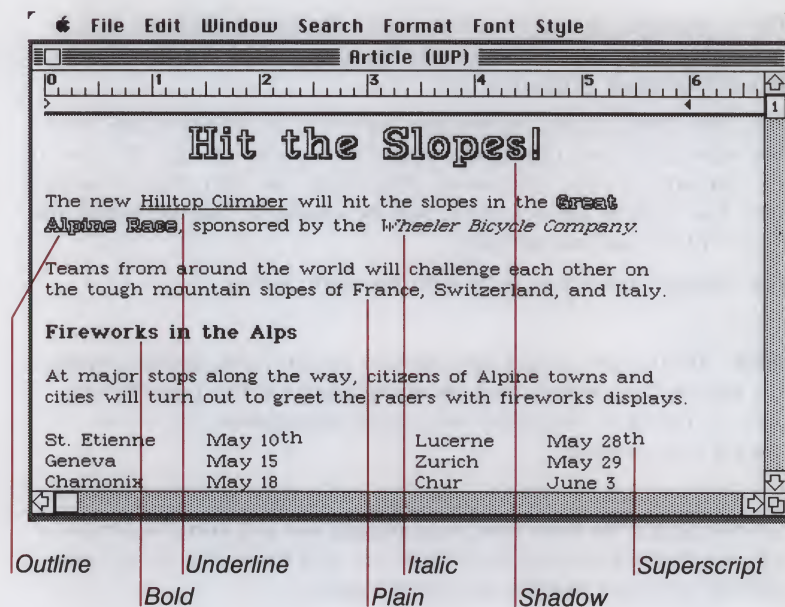
Choose the styles and size you want, then start to type.

If you want to change the styles and sizes of previously typed text, select the text, then choose the commands you want. The checkmarks on the menu indicate those commands currently in effect.

Only one size can be checked at a time. However, you can check multiple styles, such as Bold and Underline. When you choose Normal Text, all other style characteristics are cancelled.

Style	
<input checked="" type="checkbox"/> Normal Text	⌘N
<input type="checkbox"/> Bold	⌘B
<input type="checkbox"/> <i>Italic</i>	⌘I
<input type="checkbox"/> <u>Underline</u>	⌘U
<input type="checkbox"/> Outline	
<input type="checkbox"/> Shadow	
<input type="checkbox"/> Superscript	
<input type="checkbox"/> Subscript	
<hr/>	
<input type="checkbox"/> 9 Point	
<input checked="" type="checkbox"/> 10 Point	
<input type="checkbox"/> 12 Point	
<input type="checkbox"/> 14 Point	
<input type="checkbox"/> 18 Point	
<input type="checkbox"/> 20 Point	
<input type="checkbox"/> 24 Point	

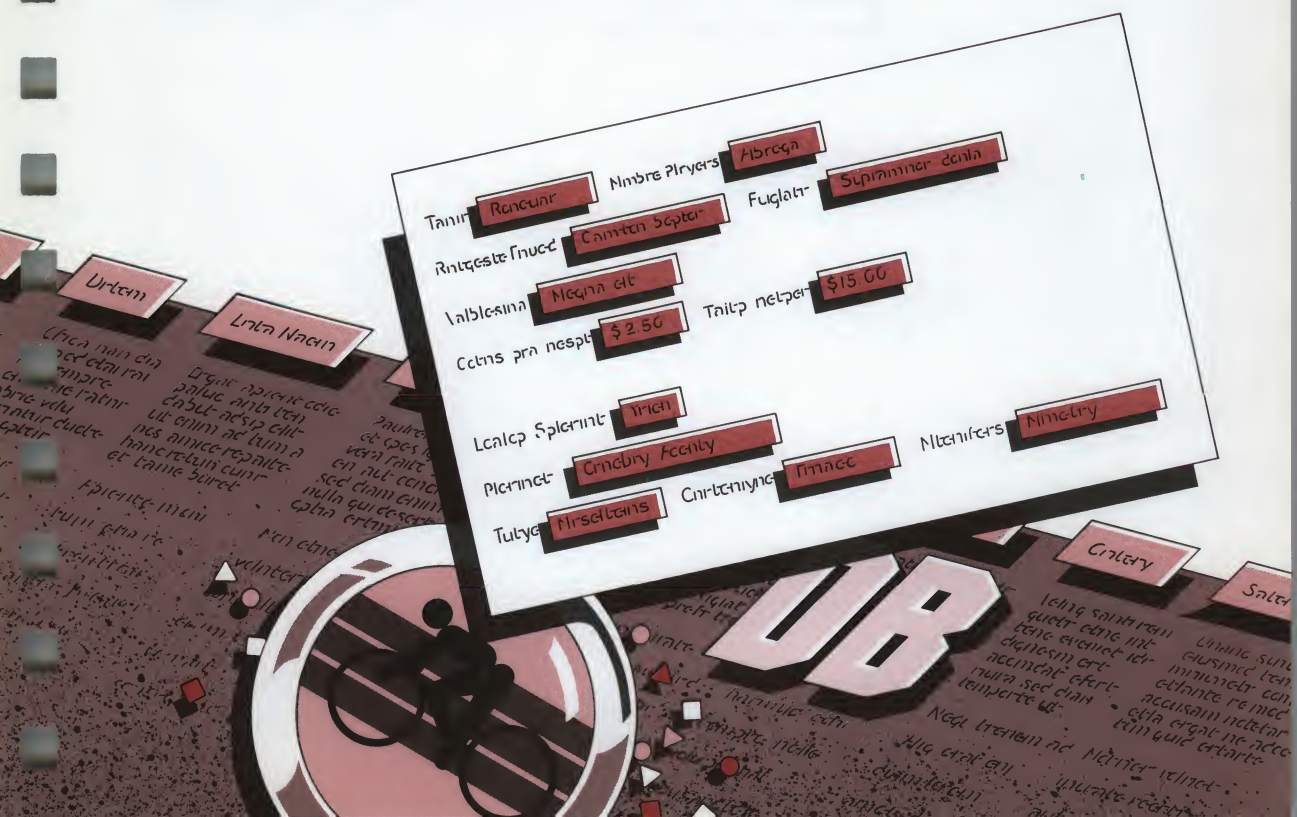
Some of the choices from the Style menu are illustrated below.



The Database

The Works Database automates your filing system. With your information stored in the Database, you'll have quick access to any combination of records. If you want a list of sales leads in Cincinnati, or restaurant names that begin with "S" in Buffalo, just ask the Database. If the information is there, the Database will find it.

Printed reports put Database information down on paper. From one set of information, you can print many different reports. Each report will contain just the particular information you want to pull from the Database document.



This part of the manual explains how to create and use Database documents:

- Chapter 6, "Creating a Database Document," shows you two ways to view a Database document, and how to create a new Database document and add information to it. It also explains how to correct mistakes as you make your entries.
- Chapter 7, "Editing a Database Document," shows how you can change your information or the way it's presented. It also explains how to use computed fields.
- Chapter 8, "Organizing a Database Document," shows you how to quickly put your information in order, how to find what you need, and how to make several smaller, specialized Database documents out of one large one.
- Chapter 9, "Making a Report," shows you how to define and print a report. You'll learn how to sum the contents of your fields and produce a grand total at the end.
- Chapter 10, "Database Command Reference," describes the commands you can use with the Database.

If you want to merge Database information into a Word Processor document, see Chapter 21, "Merging: Creating Mailing Labels, Form Letters, and Forms."

6 Creating a Database Document

This chapter explains how to get started with the Database. It shows you how to:

- View a Database document in a form window and a list window.
- Set up a new Database document.
- Add new fields.
- Switch between list and form windows.
- Make entries.

An Overview

When you first create a new Database document, you set up fields to contain information. After you set up a field, you also determine how you want it to store information—as text, perhaps, or as a date or number. Once you’ve specified all your fields, you’re ready to add information.

You can add information to a form or a list. Because a form shows all the fields on the screen at one time, it’s easier to enter full records using a form. If you only have a few fields, however, you may find it easier to make entries to a list. Either way, all the information goes into a single Database document. You can organize and review your information in either a list window or a form window.

Looking at a form

Looking at a Form

When you first set up a Database document, you create a form and fill it out.

The screenshot shows a database window titled "Addresses (DB)". It contains a form with the following fields and values:

First Name	Barbara	Address	2122 Broad Street
Last Name	Smith	City	New Orleans
Salutation	Ms.	State	LA
		Zip	70101
Company	Wheeler Bicycle Company		
Title	Board Member	Birthday	January 1, 1931
Work Phone	(504) 222-1111		
	Home Phone	(504) 111-2222	

Labels and pointers in the diagram:

- Entry bar:** Points to the top menu bar (File, Edit, Window, Organize, Format, Report).
- Record:** Points to the entire form area.
- Field:** Points to the "Work Phone" input box.
- Field name:** Points to the "Home Phone" label.
- Entry or field data:** Points to the phone number "(504) 111-2222".

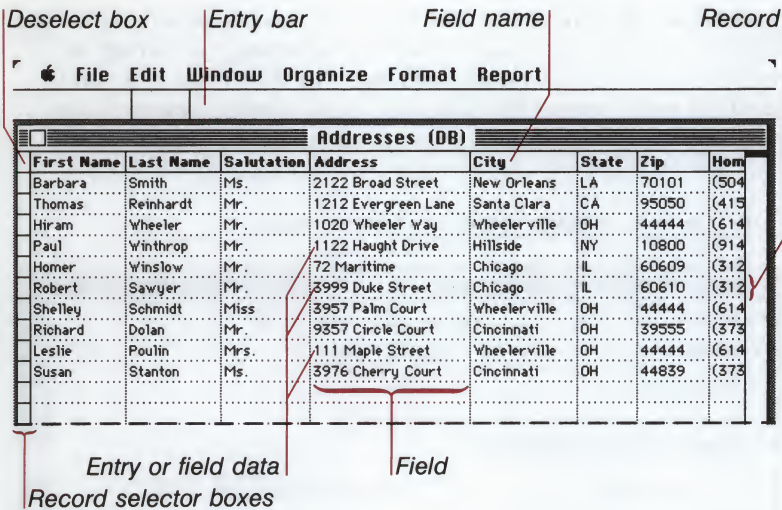
This example from an address file shows a single record in a form window. All the information about one person or subject — the name, address, and so forth — makes up one record.

Each record is divided into fields of information. The address is one field, the city and state are others. Each field has a name so that you know what sort of information to fill it with. And when you enter information — for example, "2122 Broad Street" — you make an entry in a field. Sometimes, entries are called field data.

Looking at a list

Looking at a List

When you want to see many records at once — to make comparisons, for example — you can list them.



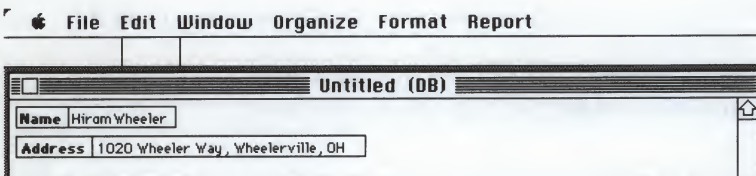
Remember that a Database document can be much larger than a window. You move around a large document by scrolling. The scroll bars at the right and bottom of the window show you where you are in a Database document and enable you to scroll. If the document is not larger than the window, no scroll bars will appear.

Planning a Database Document

There's nothing complicated about setting up a Database document. It's easy to rearrange your information with the Works Database—you can play with your document until it looks just the way you want. But a little bit of advance planning might help.

The most important thing to remember is that you work with your Database information using the fields you set up.

For example, if you set up an address list, you could set up two fields, "Name" and "Address". Your first record might look something like this:



Planning a Database document

A Database document like this has room for everyone's name and address. But it's not designed well for searching or sorting. A better way to set up a document like this is to make a separate field for each component that you might want to search for or sort on:

The screenshot shows a window titled "Addresses (DB)" with a menu bar (File, Edit, Window, Organize, Format, Report) and a toolbar. The form contains the following fields:

First Name	Hiram	Address	1020 Wheeler Way
Last Name	Wheeler	City	Wheelerville
Salutation	Mr.	State	OH
		Zip	44444
Company	Wheeler Bicycle Company		
Title	Chairman	Birthday	January 3, 1938
Work Phone	(614) 432-1235	Home Phone	(614) 432-1234

Now you can find all the people who live in Ohio, or work for the Department of the Interior. Or anyone whose first name is John and whose zip code is 44444. Or any combination you can think of. Even if you don't set up fields in the most useful way when you first create a new Database document, you can always go back and add new fields at any time.

Setting Up a New Database Document

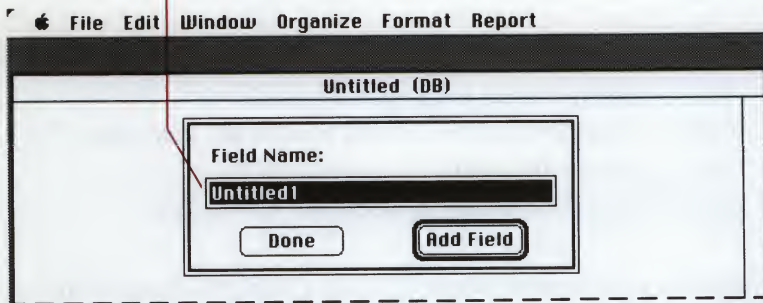
To set up a new Database document

When you set up a new Database document from scratch, you have to create a new Works document. Because there's no information in the document yet, Works asks you to set up fields first. After you name one or more fields, you'll be able to start entering your information.

- 1 Create a new Database document. (Choose New from the File menu.)

Works creates an empty document with the name "Untitled," and asks you for the name of the first field.

Type a field name here.



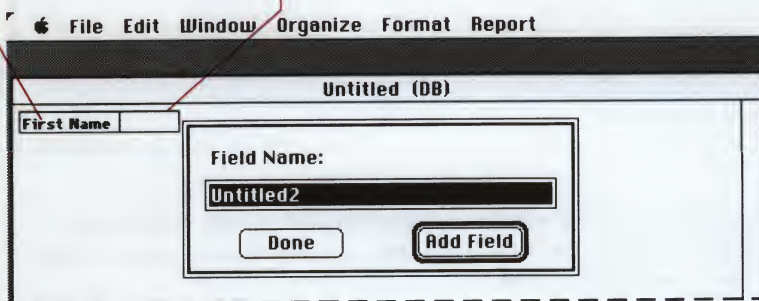
- 2 Type the name of your first field.

A field name must begin with a letter, and it cannot contain certain characters, such as asterisks, parentheses, or hyphens.

- 3 Click the Add Field button or press the Return key.

The new field with the name you typed appears in the form window, and the dialog box reappears so that you can set up another field.

Field name in bold type Border



- 4 Type a name for the second field and for as many other fields as you want.

Works adds each field below the previous one.

- 5 Click the Done button when you've added all the fields you want.

The dialog box disappears, and the first field is selected.

Adding a New Field

To add a new field

You can add a new field whenever you want.

- 1 Choose Add New Field from the Edit menu.
Works displays a dialog box asking you for the field name.
- 2 Type a name for the field.
- 3 Click the Add Field button or press the Return key.

If you're in a list window when you add a field, Works adds the field to the right of the rightmost field and scrolls to the new field. Works puts the field name at the top of the new column.

New field in a list

Addresses (DB)					
Work Phone	Birthday	Title	Company	Name of Spouse	
504) 222-1111	January 1, 1931	Board Member	Wheeler Bicycle Com		
415) 333-4444	January 2, 1928	Board Member	Wheeler Bicycle Com		
614) 432-1235	January 3, 1838	Chairman	Wheeler Bicycle Com		
212) 121-2121	January 4, 1948	Board Member	Wheeler Bicycle Com		
312) 343-3434	March 28, 1950	Board Member	Wheeler Bicycle Com		
312) 999-6666	December 5, 1941	Board Member	Wheeler Bicycle Com		
614) 432-2939	May 3, 1955	Secretary	Wheeler Bicycle Com		
373) 387-3877	June 23, 1949	Lawyer	Wheeler Bicycle Com		
614) 747-7474	April 18, 1958	Assistant	Wheeler Bicycle Com		
614) 393-3939	October 20, 1961	Office Manager	Wheeler Bicycle Com		

If you're in a form window when you add a field, Works adds the new field in the first blank area it finds that is large enough to accommodate a field.

Addresses (DB)

First Name Address

Last Name City

Salutation State

Zip

Company

Title Birthday

Work Phone Home Phone

Name of Spouse

New field in a form

You can move any field at any time when you're using the Database. Notice, however, that the position of a field in the list window is not related to its position in a form window. For more information, see the two sections on sizing and arranging fields in Chapter 7.

There's also another way to add a field in a form window. Move the pointer to wherever you want the upper-left corner of the field to be. Then hold down the mouse button and drag to the right far enough to accommodate the field name and field data. When you release the button, Works displays a dialog box asking you for the field name.

If you're making a new Database document, each field in a form window consists of a double box, with the field name in one box and space for your entry in the other box.

The Format menu lets you change the way fields show up on the form. For example, in the previous illustration, there are no boxes around the field names. To find out how to change the format of your field, see "Changing the Appearance of Fields in a Form Window" in Chapter 7.

Switching Between List and Form Windows

You can switch between list and form windows by choosing a command or clicking the mouse.

To switch by choosing a command

To switch windows by choosing a command:

- Choose Show List or Show Form from the Format menu.

If you pull down the Format menu when you're in a list window, the first menu item switches to Show Form, so that you can go back to the form when necessary.

To switch by clicking the mouse

You can also move between list and form windows by clicking the mouse.

To move from a form window to a list window:

- Double-click anywhere in the white space of a form window.

Works displays the list, and scrolls to display the record that was displayed in the form window.

To move from a list window to a form window:

- Double-click the box to the left of any record.

Works displays the form, with the record you selected showing.

Making an Entry

To make an entry

An entry is the content of a field for a single record. An entry can be blank or it can contain some information. To enter information into an entry, you first select the entry, then start typing. You can type information into an active entry in your Database document in either a list window or a form window. When an entry is active, you can change its contents.

To make a Database entry:

- 1 Select an entry by clicking it.
The entry you click becomes the active entry.

Click an entry to select it.

Addresses (DB)				
Work Phone	Birthday	Title	Company	Name of Spouse
504) 222-1111	January 1, 1931	Board Member	Wheeler Bicycle Com	
415) 333-4444	January 2, 1928	Board Member	Wheeler Bicycle Com	
614) 432-1235	January 3, 1938	Chairman	Wheeler Bicycle Com	
212) 121-121	January 4, 1948	Board Member	Wheeler Bicycle Com	
312) 343-3434	March 28, 1950	Board Member	Wheeler Bicycle Com	
312) 999-6666	December 5, 1941	Board Member	Wheeler Bicycle Com	
614) 432-2939	May 3, 1955	Secretary	Wheeler Bicycle Com	
373) 387-3877	June 23, 1949	Lawyer	Wheeler Bicycle Com	
614) 747-7474	April 18, 1958	Assistant	Wheeler Bicycle Com	
614) 393-3939	October 20, 1961	Office Manager	Wheeler Bicycle Com	

In a list window, you can select an entry only in a record that already contains information, or in the first blank record.

Addresses (DB)			
First Name Barbara	Address 2122 Broad Street		
Last Name Smith	City New Orleans		
Salutation Ms.	State LA		
	Zip 70101		
Company Wheeler Bicycle Company	Name of Spouse		
Title Board Member	Birthday January 1, 1918		
Work Phone (504) 222-1111	Home Phone (504) 111-2222		

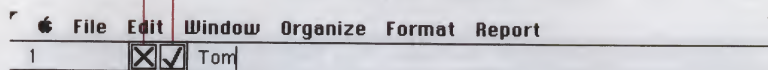
Click anywhere in a field to select the entry.

2 Start typing.

When you type, the information appears in the entry bar at the top of the screen (but not in the active entry). The cancel box and the enter box appear to the left of the entry bar.

Click here to undo your typing.

Click here to enter your typing.



If you make a mistake, you can make corrections or cancel the typing. The cancel box restores the entry to what it was before you began typing. The enter box enters what you type.

The Database can read times and dates in most formats that you might want to use, but converts them to its own standard formats. For information about typing dates and times, see “Changing the Format of a Field” in Chapter 7.

You can type up to 250 characters for an entry. Even if the field is too narrow to display all the characters, you will see the full entry in the entry bar.

To enter what you type

To put information into the Database, you enter it. When you enter information, you tell the Database that you’re finished typing. The Database stores the entered information as an entry.

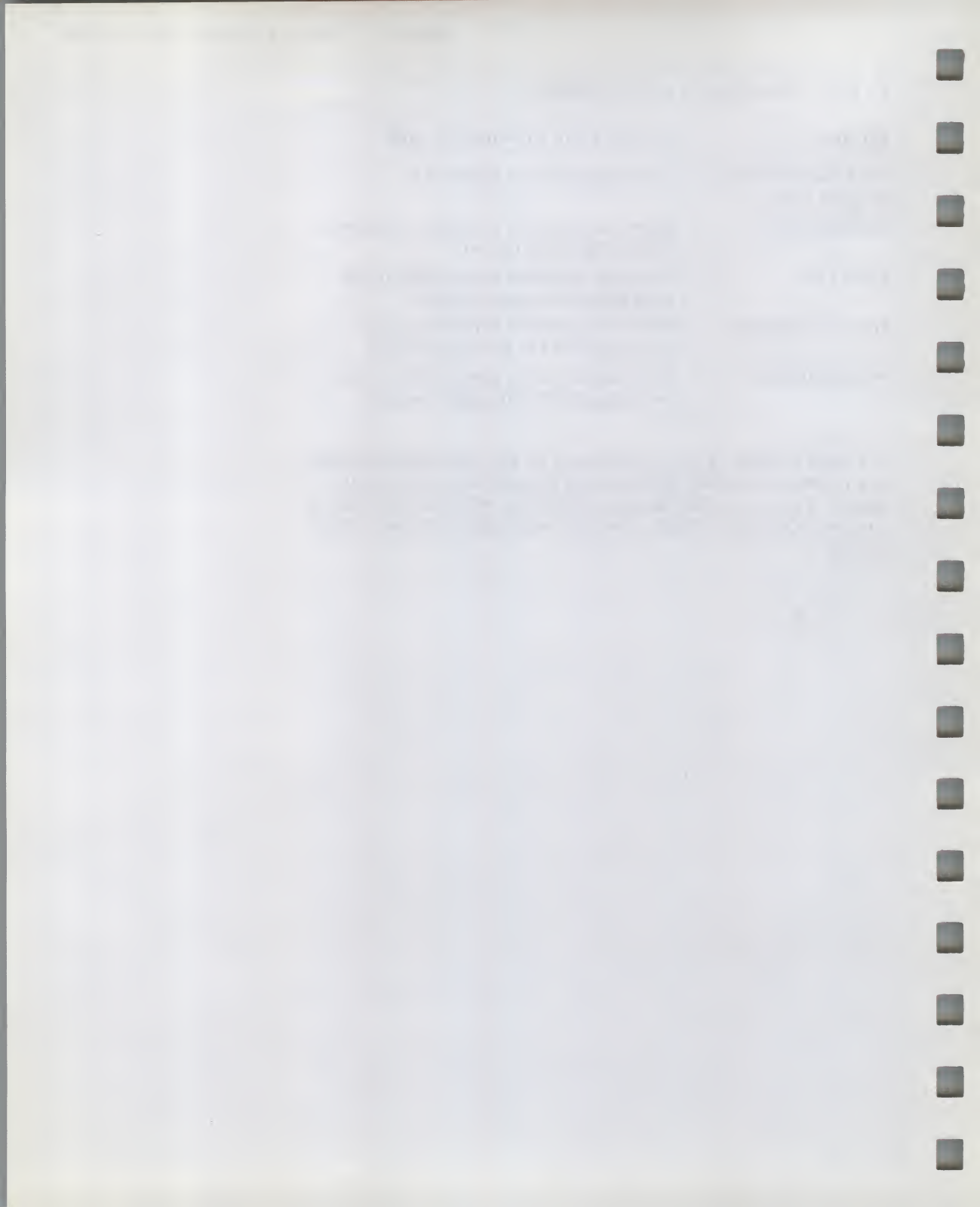
To enter information in a list window:

Do this	To enter the information and
Click the enter box or press Enter	Leave the selection where it is.
Press Return	Move the selection to the same field in the next record.
Press Tab	Move the selection to the next field in the same record.
Press Shift-Return	Move the selection to the same field in the preceding record.
Press Shift-Tab	Move the selection to the preceding field in the same record.

To enter information in a form window:

Do this	To enter the information and
Click the enter box or press Enter	Leave the selection where it is.
Press Return	Move the selection vertically to the next field in the same record.
Press Tab	Move the selection horizontally to the next field in the same record.
Press Shift-Return	Move the selection vertically to the preceding field in the same record.
Press Shift-Tab	Move the selection horizontally to the preceding field in the same record.

In a form window, if you press Return or Tab when the last field in a record is selected, Works moves the selection to the next record. If you press Shift-Return or Shift-Tab when the first field in a record is selected, Works moves the selection to the preceding record.



7 Editing a Database Document

You'll often need to update your Database documents, changing old information and adding new. This chapter explains how to:

- Select information.
- Change the appearance of fields in a form.
- Change the way information is displayed in a field.
- Calculate with the Database.
- Rename a field.
- Size and arrange fields in both form and list windows.
- Divide a list window into panes.
- Insert a record.
- Show a grid.
- Copy information.
- Make corrections and remove information.

If you want to add new fields to an existing Database document, see "Adding a New Field" in Chapter 6.

If you want to rearrange and organize your information, rather than change it, see Chapter 8, "Organizing a Database Document."

Selecting Information

Before you perform an action on any part of a Database document, you select it. You can select entries, fields, or records. Then you can perform actions like sorting, removing, or copying. When you make any selection, Works displays the number of the record containing the active selection at the left of the cancel box. This number is called the record indicator.

In a list window, you can select an entry, a field (column), a record (row), or a block of entries. You can also cancel (remove) a selection by clicking the deselect box at the far left of the field names.

To select information

When you make a selection of more than one entry, only one entry is active at a time. This entry is bordered in white. You can move through the selection, moving the active entry, by pressing the Return or Tab key.

Click an entry to select it.

Double-click an entry to change its field attributes.

Click a field name to select all entries in the field.

Double-click a field name to change its name.

Addresses (DB)							
First Name	Last Name	Salutation	Address	City	State	Zip	Home
Barbara	Smith	Ms.	2122 Broad Street	New Orleans	LA	70101	(504)
Thomas	Reinhardt	Mr.	1212 Evergreen Lane	Santa Clara	CA	95050	(415)
Hiram	Wheeler	Mr.	1020 Wheeler Way	Wheelerville	OH	44444	(614)
Paul	Winthrop	Mr.	1122 Haught Dr.	Hillside	NY	10800	(914)
Homer	Winslow	Mr.	72 Maritime	Chicago	IL	60609	(312)
Robert	Sawyer	Mr.	3999 Duke Street	Chicago	IL	60610	(312)
Shelley	Schmidt	Miss	3957 Palm Court	Wheelerville	OH	44444	(614)
Richard	Dolan	Mr.	9357 Circle Court	Cincinnati	OH	39555	(373)
Lestie	Poulin	Mrs.	111 Maple Street	Wheelerville	OH	44444	(614)
Susan	Stanton	Ms.	3976 Cherry Court	Cincinnati	OH	44839	(373)

Click here to select all entries in a record.

Click the deselect box to cancel a selection.

In a form window, you can only select an entry.

Click anywhere in a field to select the entry.

Addresses (DB)							
First Name	Barbara	Address	2122 Broad Street				
Last Name	Smith	City	New Orleans				
Salutation	Ms.	State	LA				
		Zip	70101				
Company	Wheeler Bicycle Company						
Title	Board Member	Birthday	January 1, 1931				
Work Phone	(504) 222-1111	Home Phone	(504) 111-2222				
Name of Spouse							

Double-click an entry to change its field attributes.

Double-click a field name to change its name.

In either type of window, when you select an entry, it becomes active and you can change its contents in the entry bar. When you select a field, you can move it, size it, change its name, or change its attributes.

The content of the active entry is displayed in the entry bar. Even though it is not highlighted, it is selected; anything you type will replace what is displayed. To edit the entry, you can select any part of it.

*Double-click to select a word,
or drag to select more text.*

Click to position the insertion point.

1 ☒ ☒ 2122 Broad Street

First Name	Last Name	Salutation	Address	City	State	Zip	Home
Barbara	Smith	Ms.	2122 Broad Street	New Orleans	LA	70101	(504)
Thomas	Reinhardt	Mr.	1212 Evergreen Lane	Santa Clara	CA	95050	(415)
Hiram	Wheeler	Mr.	1020 Wheeler Way	Wheelerville	OH	44444	(614)
Paul	Wentrop	Mr.	1122 Haight Drive	Hillside	NY	10800	(914)
Homer	Winslow	Mr.	72 Maritime	Chicago	IL	60609	(312)
Robert	Sawyer	Mr.	3999 Duke Street	Chicago	IL	60610	(312)
Shelley	Schmidt	Miss	3957 Palm Court	Wheelerville	OH	44444	(614)
Richard	Dolan	Mr.	9357 Circle Court	Cincinnati	OH	39555	(373)
Leslie	Poulin	Mrs.	111 Maple Street	Wheelerville	OH	44444	(614)
Susan	Stanton	Ms.	3976 Cherry Court	Cincinnati	OH	44839	(373)

**To select in the
entry bar**

Changing the Appearance of Fields in a Form Window

When you set up a new Database document, the records are displayed in a form window with borders around each field name and each entry. The field name is in bold type, and the entry is in plain type. You can change the way records are displayed to get different effects.

To add or remove borders around field names or entries:

- ☒ Choose Border Field Name or Border Field Data from the Format menu.

**To put borders
around field names
or entries**

To display field names or entries in bold type:

- ☒ Choose Bold Field Name or Bold Field Data from the Format menu.

**To put field names or
entries in bold type**

A command that is currently in effect is checked on the menu. To remove a checkmark, choose the command.

Some of the different appearances you can create are shown below. The commands you choose affect all fields and records in a document.

Addresses (DB)

First Name	Barbara	Address	2122 Broad Street
Last Name	Smith	City	New Orleans
Salutation	Ms.	State	LA
		Zip	70101
Company	Wheeler Bicycle Company		

Bold field name (points to Company)
Border (points to First Name)
Plain text (points to Zip)
No border (points to Address)

Addresses (DB)

First Name	Barbara	Address	2122 Broad Street
Last Name	Smith	City	New Orleans
Salutation	Ms.	State	LA
		Zip	70101
Company	Wheeler Bicycle Company		

Bold entry (points to Company)
Plain field name (points to First Name)
No border (points to Address)
Border (points to Zip)

Changing the Format of a Field

There's more to formatting in the Database than using borders or bold type. You can also set field attributes that determine what kind of information can be kept in a field, and how that information is displayed. For example, you can specify that a field named "Total Cost" contain only numbers displayed as dollar amounts.

Field attributes apply to field data in both lists and forms. The normal settings are left-aligned plain text for non-numeric characters and right-aligned Fixed format for numbers.

Field attributes include the type of field, the way numbers are displayed, the alignment and style of text, and the number of decimal places to be displayed. You can also specify that a numeric field be computed or that a date field include the day of the week.

With the Set Field Attributes command, you can customize the appearance of your data whenever you want. Because the field type determines which other attributes are available to you, you should choose the field type first.

To set or change field attributes:

- 1 Select a field or an entry in the field.
- 2 Choose Set Field Attributes from the Format menu.
The Set Field Attributes dialog box appears.
- 3 Click the options you want for the field.
- 4 Click the OK button.

For a complete description of the options available in the Set Field Attributes dialog box, see "Set Field Attributes" in Chapter 10.

When you specify a date field with the Set Field Attributes command, the Database gives you a choice of short, medium, or long displays. You can also choose to have the day of the week displayed with the medium and long displays. You can type the date in any of the following formats, and the Database will display it in the form you chose in the Set Field Attributes dialog box:

- 08/10/86
- 8-10-86
- 8.10.86
- 08/10/1986
- Sun, Aug 10, 1986
- Aug 10, 1986
- August 10, 1986
- Sunday, August 10, 1986

Then, depending on the options you choose, Works displays the date like this:

Display	Show Day Unchecked	Show Day Checked
Medium	Aug 10, 1986	Sun, Aug. 10, 1986
Long	August 10, 1986	Sunday, August 10, 1986

You can enter the current date in an entry by pressing Command-D.

To set or change field attributes

To type a date

To type a time

Works displays time using a 12-hour clock, even if you enter a time in 24-hour format.

If you type

Works displays

8:04

8:04 AM

20:04

8:04 PM

8:4 pm

8:04 PM

20:4

8:04 PM

If you don't use 24-hour time, remember to include the "am" or "pm". If you don't specify this, Works displays "AM".

You can enter the current time in an entry by pressing Command-T.

Important You can change a text field to a date, time, or number field after you enter the data. However, if the data is not in an acceptable format when you change the type of field, Works deletes the data. You can change a date, time, or number field to a text field and retain all your data.

Calculating with the Database

What is a computed field?

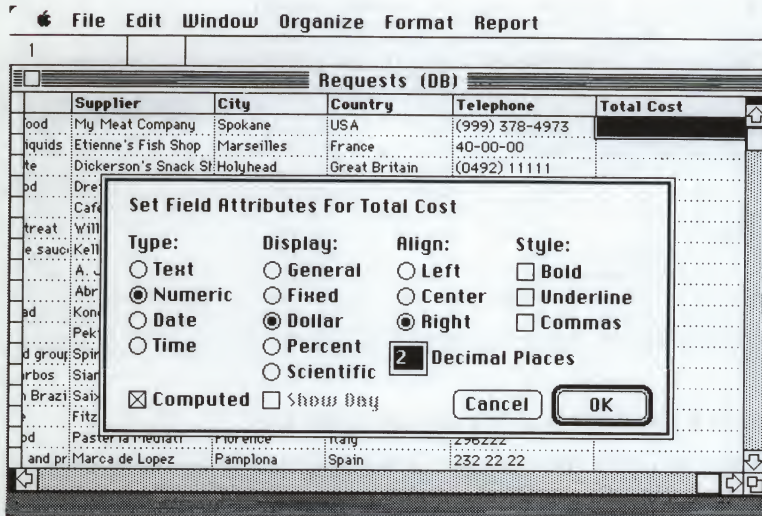
A computed field contains the results of a calculation based on the contents of other fields. For example, a computed field in a payroll Database document might calculate weekly wages by multiplying the "Hours Worked" field by the "Dollars Per Hour" field.

Computed fields aren't meant for complex numerical analysis. They allow addition, subtraction, multiplication, division, and exponentiation. (Exponentiation raises one number to the power of another; for example, $2^2 = 4$ and $2^3 = 8$.) In computed fields, you can use all Spreadsheet functions, except those that use ranges as arguments. For detailed information on the Spreadsheet functions, see Chapter 15, "Spreadsheet Functions." For making projections or performing sophisticated calculations, use the Spreadsheet.

You designate a computed field in the Set Field Attributes dialog box.

To make a computed field:

- 1 Select a numeric field.
- 2 Choose Set Field Attributes from the Format menu.
- 3 Click the Computed option.



- 4 Click the OK button.

Works returns you to the form or list you were looking at. The equal sign in the entry bar shows you that Works needs a formula for the calculation.

To tell Works what you want to compute, you enter a formula. A formula for a computed field can contain field names, operators, functions, and numbers. To include a field name, you can either type the name yourself or click the field name and have Works put it in the entry bar for you. A formula can contain up to 238 characters.

To make a computed field

To enter a formula

To enter a formula for a computed field, first follow the procedure for designating a computed field, above. Then:

- 1 Type the formula at the insertion point.

It might look something like this:

Mathematical operator

Selected entry

First field name

Second field name

1

☒ ☒ =Number on Team*Cost per Person

Requests (DB)

	Supplier	City	Country	Telephone	Total Cost
ood	My Meat Company	Spokane	USA	(999) 378-4973	\$0.00
liquids	Etienne's Fish Shop	Marseilles	France	40-00-00	\$0.00
te	Dickerson's Snack St	Holyhead	Great Britain	(0492) 11111	\$0.00
pd	Dreiviertel Pfund	Munich	Germany	22 00 00	\$0.00
	Cafe Hansi	Vienna	Austria	43 00 00	\$0.00
treat	Williams's Fruit	Christchurch	New Zealand	216220	\$0.00
e sauc	Kelly's Barbie Treat	Melbourne	Australia	456-777	\$0.00
	A. Joshi Pastries	Jodhpur	India	674-444	\$0.00
	Abrahamsson Baker	Goteborg	Sweden	15 22 22	\$0.00
ad	Konditori Andersen	Copenhagen	Denmark	12 22 22	\$0.00
	Peking Duck Mart	Beijing	China	756434	\$0.00
d group	Spiro Agnopoulos	Olympia	Greece	21999	\$0.00

- 2 Click the enter box or press the Enter key.

Works calculates the contents of the new field from the formula you typed. If you included a nonexistent field name in the formula, Works displays an alert box.

Renaming a Field

To rename a field

If you decide to change the name of a field, you can rename it.

To rename a field:

- 1 Select the field.
- 2 Choose Change Field Name from the Edit menu.

The Field Name dialog box appears. The current name is selected, so you can just type the new name to replace it.

- 3 Type the new name in the dialog box.
- 4 Click the OK button or press the Return key.

Works replaces the old name with the new one.

You can also double-click the field name to see the Field Name dialog box.

Sizing and Arranging Fields in a Form Window

You can change the size and arrangement of fields in a form window whenever you want.

To change the size of a field in a form window:

- 1 Position the pointer on the right edge of the field data box.
The pointer turns into a two-way arrow. (If you have removed the borders from the field data, move the pointer to where the box would normally be. When you're at the right place, the two-way arrow appears.)
- 2 Hold down the mouse button and drag to the right or left until the box is the size you want.

To change the size of a field

Apple File Edit Window Organize Format Report

1 (999) 378-4973

Requests (DB)

Team USA Peeps 10

Requested Food Hamburgers Comment High-protein food

Local Supplier? Yes Available May, June

Cost per Person \$5.10

Supplier My Meat Company

City Spokane Country USA Telephone (999) 378-4973

*Press the mouse button here...
...and drag until the field is the size you want.*

You don't have to leave fields where you first create them. Works lets you move fields to wherever they make the most sense to you.

To move a field in a form window:

- 1 Position the pointer over the field name.
The pointer turns into a hand.
- 2 Drag the field to its new location.

To move a field

If a field won't fit where you want to put it, you'll have to make room for it. You can make it smaller, or make surrounding fields smaller, or move another field out of the way. If you try to move one field over another field, Works displays an alert box.

Sizing and Arranging Fields in a List Window

The width or placement of fields in a new list may not satisfy you. They're all the same width, and their order is based on the order in which you first typed the field names. But in an address book, for example, you might want the "First Name" field to be wider than the "Middle Initial" field. And it would make more sense to have "Last Name" as the first field, rather than "Zip Code" or "State." Works lets you size and arrange your fields however you want them at any time.

To change the width of a field

To change the width of a field in a list window:

- 1 Position the pointer on the right edge of the field name box. The pointer turns into a two-way arrow.

Drag to the left to
narrow a field.

Drag to the right to
widen a field.

Requests (DB)						
Team	Peeps	Requested Food	Cost per Person	Local	Available	Comment
USA	10	Hamburgers	\$5.10	Yes	May, June	High-protein
France	7	Bouillabaisse	\$1.50	Yes	May, June	Supplement
England	6	Fish and Chips	\$5.40	No	May, June	English favo
Germany	8	Brezen	\$1.10	Yes	May, June	High-carbo
Austria	5	Wiener Schnitzl	\$4.25	Yes	May, June	High-protein
New Zealand	6	Kiwis	\$2.70	No	January	South Pacifi
Australia	8	Barbequed Shri	\$6.10	Yes	August, September	Spicy barbe
India	6	Samosas	\$2.05	No	May, June	Appetizer
Sweden	5	Knackebrod	\$1.95	Yes	May, June	Filling
Denmark	6	Polse	\$4.60	Yes	May, June	Best with b
China	7	Pressed Duck	\$5.90	No	May, June	Rare treat
Greece	5	Moussaka	\$3.95	Yes	May, June	Includes 3 f

As you drag to adjust the field size, a dotted line shows you where the new edge of the field will be.

- 2 Drag to the right to widen the field, or to the left to narrow it.

To move a field in a list window:

- 1 Position the pointer on the name of the field you want to move.
- 2 Drag the field to the right or left.

As you drag, Works highlights the field names that you pass over.

To move a field

Dragging the "Requested Food" field to the left

Requests (DB)						
Team	Peeps	Requested Food	Cost per Person	Local	Available	Comment
USA	10	Hamburgers	\$5.10	Yes	May, June	High-prote
France	7	Bouillabaisse	\$1.50	Yes	May, June	Supplemen
England	6	Fish and Chips	\$5.40	No	May, June	English fav
Germany	8	Brezen	\$1.10	Yes	May, June	High-carbo
Austria	5	Wiener Schnitzl	\$4.25	Yes	May, June	High-prote
New Zealand	6	Kiwis	\$2.70	No	January	South Pacif
Australia	8	Barbequed Shrin	\$6.10	Yes	August, September	Spicy barbe
India	6	Samosas	\$2.05	No	May, June	Appetizer
Sweden	5	Knackebrod	\$1.95	Yes	May, June	Filling
Denmark	6	Polse	\$4.60	Yes	May, June	Best with b
China	7	Pressed Duck	\$5.90	No	May, June	Rare treat
Greece	5	Moussaka	\$3.95	Yes	May, June	Includes 3

Works scrolls horizontally when you get to the edge of the window.

- 3** When Works highlights the field that you want to be adjacent to the field you're moving, release the mouse button.

The field you're moving is inserted to the left of the highlighted field if you're dragging left, or to the right if you're dragging right.

Dividing a List Window into Panes

When you have a large Database document with many fields and records, it can be time-consuming to scroll back and forth if you want to compare information in entries that are far apart. To make it easier for you to look at your information, Works provides split bars that divide a list window into panes. The panes scroll together along the direction of the split. The two panes on either side of the vertical split bar scroll together vertically. The two panes above and below the horizontal split bar scroll together horizontally. Dividing a window into panes lets you hold one pane stationary on the screen while you scroll through another pane to find particular information.

To divide the window into two panes

You can divide the window into both side-by-side and top-and-bottom panes.

- 1** Position the pointer on either the horizontal or vertical split bar.
The pointer turns into a two-way arrow.
- 2** Drag the split bar until it lines up with the right edge of the field or the bottom edge of the record at which you want to divide the Database document.

When you release the mouse button, the list window divides into two panes.

Split bar in its initial position

File Edit Window Organize Format Report

Requests (DB)

Team	Number on Team	Requested Food	Cost per Person	Local Supplier?	Available
Argentina	6	Steaks	\$7.20	Yes	May, J
Australia	8	Barbequed Shrimp	\$6.10	Yes	August
Austria	5	Wiener Schnitzel	\$4.25	Yes	May, J
Brazil	5	Lamb	\$5.60	No	May, J
Canada	8	Pea Soup	\$1.20	Yes	May, J
China	7	Pressed Duck	\$5.90	No	May, J
Denmark	6	Polse	\$4.60	Yes	May, J
Egypt	9	Dates	\$2.05	No	July, A
England	6	Fish and Chips	\$5.40	No	May, J
France	7	Bouillabaisse	\$1.50	Yes	May, J
Germany	8	Brezen	\$1.10	Yes	May, J
Greece	5	Moussaka	\$3.95	Yes	May, J
Holland	4	Goudse Kaas	\$2.95	Yes	June, J
India	6	Samosas	\$2.05	No	May, J
Italy	5	Gnocchi	\$4.75	No	May, J
Mexico	7	Tostadas	\$5.00	No	May, J
New Zealand	6	Kiwis	\$2.70	No	January

Split bar that has been dragged to the right

With four panes, you can see even more parts of a Database document at once because you can scroll each pane both vertically and horizontally.

To divide the window into four panes:

- Drag each split bar into the positions you want.

To divide the window into four panes

File Edit Window Organize Format Report

Requests (DB)

Team	Number on Team	Requested Food	Cost per Person	Local Supplier?	Available
Argentina	6	Steaks	\$7.20	Yes	May, J
Australia	8	Barbequed Shrimp	\$6.10	Yes	August
Austria	5	Wiener Schnitzel	\$4.25	Yes	May, J
Brazil	5	Lamb	\$5.60	No	May, J
Canada	8	Pea Soup	\$1.20	Yes	May, J
China	7	Pressed Duck	\$5.90	No	May, J
Denmark	6	Polse	\$4.60	Yes	May, J
Egypt	9	Dates	\$2.05	No	July, A
England	6	Fish and Chips	\$5.40	No	May, J
France	7	Bouillabaisse	\$1.50	Yes	May, J
Germany	8	Brezen	\$1.10	Yes	May, J
Greece	5	Moussaka	\$3.95	Yes	May, J
Holland	4	Goudse Kaas	\$2.95	Yes	June, J
India	6	Samosas	\$2.05	No	May, J
Italy	5	Gnocchi	\$4.75	No	May, J
Mexico	7	Tostadas	\$5.00	No	May, J
New Zealand	6	Kiwis	\$2.70	No	January

Now you have four sets of scroll bars. Each scroll bar controls the two panes that are in line with it. For example, the upper scroll bar controls the two upper panes, and the left scroll bar controls the two left panes. Otherwise, the scroll bars work normally.

To close a pane

To close a pane:

- Drag the split bar back to the far left or upper edge of the pane.

Inserting a Record

To insert a record

You can add a new record between other records, in both a list and a form window.

To insert a record:

- 1 Select a record in a list window, or scroll to a particular record in a form window.
- 2 Choose Insert Record from the Edit menu.

Works inserts a blank record before the selected or displayed record.

New blank record inserted in a list window

Requests (DB)					
Team	Number on Team	Requested Food	Cost per Person	Local Supplier?	Avail
USA	10	Hamburgers	\$5.10	Yes	May
France	7	Bouillabaisse	\$1.50	Yes	May
England	6	Fish and Chips	\$5.40	No	May
Germany	8	Brezen	\$1.10	Yes	May
Austria	5	Wiener Schnitzel	\$4.25	Yes	May
New Zealand	6	Kiwis	\$2.70	No	January
Australia	8	Barbequed Shrimp	\$6.10	Yes	August
India	6	Samosas	\$2.05	No	May
Sweden	5	Knackebrod	\$1.95	Yes	May
Denmark	6	Polse	\$4.60	Yes	May
China	7	Pressed Duck	\$5.90	No	May

New blank record inserted in a form window

Apple File Edit Window Organize Format Report

3

Requests (DB)

Team Number on Team

Requested Food Comment

Local Supplier? Available

Cost per Person

Supplier

City Country Telephone

Showing the Grid

In a list window, lines separate each column and row. You can choose to turn this grid on or off.

- ☒ Choose Show Grid or No Grid from the Format menu.

Here's how each choice looks:

Apple File Edit Window Organize Format Report

Addresses (DB)

First Name	Last Name	Salutation	Address	City	State	Zip	Home
Barbara	Smith	Ms.	2122 Broad Street	New Orleans	LA	70101	(504)
Thomas	Reinhardt	Mr.	1212 Evergreen Lane	Santa Clara	CA	95050	(415)
Hiram	Wheeler	Mr.	1020 Wheeler Way	Wheelerville	OH	44444	(614)
Paul	Winthrop	Mr.	1122 Haught Drive	Hillside	NY	10800	(914)
Homer	Winslow	Mr.	72 Maritime	Chicago	IL	60609	(312)
Robert	Sawyer	Mr.	3999 Duke Street	Chicago	IL	60610	(312)

Apple File Edit Window Organize Format Report

Addresses (DB)

First Name	Last Name	Salutation	Address	City	State	Zip	Home
Barbara	Smith	Ms.	2122 Broad Street	New Orleans	LA	70101	(504)
Thomas	Reinhardt	Mr.	1212 Evergreen Lane	Santa Clara	CA	95050	(415)
Hiram	Wheeler	Mr.	1020 Wheeler Way	Wheelerville	OH	44444	(614)
Paul	Winthrop	Mr.	1122 Haught Drive	Hillside	NY	10800	(914)
Homer	Winslow	Mr.	72 Maritime	Chicago	IL	60609	(312)
Robert	Sawyer	Mr.	3999 Duke Street	Chicago	IL	60610	(312)

To show or hide the grid

Copying Information

You can copy individual records, fields, or entries, and blocks of records, fields, or entries. Copying within and between documents saves you from having to retype similar information. For example, if you have ten people in your address book who live in Seattle, Washington, you can type the city and state once, and copy the rest. Although you can copy in both list and form windows, it's easier in a list window, because you can copy multiple records at once.

To copy a record

Some records are only slightly different from one another. To save time and typing, you can copy one of these records and change the copies where necessary.

To copy a record:

- 1 Make sure you're in a list window.
- 2 Click the record selector box at the left of the record you want to copy.
- 3 Choose Copy from the Edit menu.
- 4 Select the row where you want the copy to go.
- 5 Choose Paste from the Edit menu.

Works inserts a new row containing the copied information above the selected row, and moves the following records down to accommodate the new one.

To copy an entry

There are times when you'll want two or more records to have the same entry for a particular field. To copy an entry into the same field of the next record:

- 1 Select the entry below the one you want to copy.
- 2 Press Command-".
Works displays the copied information in the entry bar.
- 3 Click the enter box or press the Return key.

Works copies the information into the selected entry.

To make multiple copies of an entry or block of entries:

- 1 Make sure you're in a list window.
- 2 Select the entries you want to copy.

To make multiple copies of an entry

File Edit Window Organize Format Report							
10	Cincinnati						
Addresses (DB)							
First Name	Last Name	Salutation	Address	City	State	Zip	Home
Barbara	Smith	Ms.	2122 Broad Street	New Orleans	LA	70101	(504)
Thomas	Reinhardt	Mr.	1212 Evergreen Lane	Santa Clara	CA	95050	(415)
Hiram	Wheeler	Mr.	1020 Wheeler Way	Wheelerville	OH	44444	(614)
Paul	Winthrop	Mr.	1122 Haught Drive	Hillside	NY	10800	(914)
Homer	Winslow	Mr.	72 Maritime	Chicago	IL	60609	(312)
Robert	Sawyer	Mr.	3999 Duke Street	Chicago	IL	60610	(312)
Shelley	Schmidt	Miss	3957 Palm Court	Wheelerville	OH	44444	(614)
Richard	Dolan	Mr.	9357 Circle Court	Cincinnati	OH	39555	(373)
Leslie	Poulin	Mrs.	111 Maple Street	Wheelerville	OH	44444	(614)
Susan	Stanton	Ms.	3976 Cherry Court	Cincinnati	OH	44839	(373)
David	Morgan	Mr.	9373 Manor Road				

Drag the mouse to select the entries you want to copy.

Make sure there are empty entries to receive the copy.

- 3 Choose Copy from the Edit menu.
- 4 Select the entries to receive the copy.
- 5 Choose Paste from the Edit menu.

Works fills in the selected entries with a copy of the information.

File Edit Window Organize Format Report							
11		Cincinnati					
Addresses (DB)							
First Name	Last Name	Salutation	Address	City	State	Zip	Home
Barbara	Smith	Ms.	2122 Broad Street	New Orleans	LA	70101	(504)
Thomas	Reinhardt	Mr.	1212 Evergreen Lane	Santa Clara	CA	95050	(415)
Hiram	Wheeler	Mr.	1020 Wheeler Way	Wheelerville	OH	44444	(614)
Paul	Winthrop	Mr.	1122 Haught Dr.	Hillside	NY	10800	(914)
Homer	Winslow	Mr.	72 Maritime	Chicago	IL	60609	(312)
Robert	Sawyer	Mr.	3999 Duke Street	Chicago	IL	60610	(312)
Shelley	Schmidt	Miss	3957 Palm Court	Wheelerville	OH	44444	(614)
Richard	Dolan	Mr.	9357 Circle Court	Cincinnati	OH	39555	(373)
Leslie	Poulin	Mrs.	111 Maple Street	Wheelerville	OH	44444	(614)
Susan	Stanton	Ms.	3976 Cherry Court	Cincinnati	OH	44839	(373)
David	Morgan	Mr.	9373 Manor Road	Cincinnati	OH	44839	(373)

Now you can select these two blocks of entries to copy and paste into the next two records.

Addresses (DB)								
First Name	Last Name	Salutation	Address	City	State	Zip	Home	
Barbara	Smith	Ms.	2122 Broad Street	New Orleans	LA	70101	(504)	
Thomas	Reinhardt	Mr.	1212 Evergreen Lane	Santa Clara	CA	95050	(415)	
Hiram	Wheeler	Mr.	1020 Wheeler Way	Wheelerville	OH	44444	(614)	
Paul	Winthrop	Mr.	1122 Haught Dr.	Hillside	NY	10800	(914)	
Homer	Winslow	Mr.	72 Maritime	Chicago	IL	60609	(312)	
Robert	Sawyer	Mr.	3999 Duke Street	Chicago	IL	60610	(312)	
Shelley	Schmidt	Miss	3957 Palm Court	Wheelerville	OH	44444	(614)	
Richard	Dolan	Mr.	9357 Circle Court	Cincinnati	OH	39555	(373)	
Leslie	Poulin	Mrs.	111 Maple Street	Wheelerville	OH	44444	(614)	
Susan	Stanton	Ms.	3976 Cherry Court	Cincinnati	OH	44839	(373)	
David	Morgan	Mr.	9373 Manor Road	Cincinnati	OH	44839	(373)	
Martin	Cook	Mr.	9292 First Street					
Laura	Martin	Mrs.	2838 Pine Valley					

Select these entries... ..and paste them here.

Then you can select the four identical blocks of entries and copy and paste them into the next four records. You can repeat this process to fill your records as often as you need to.

Making a Correction

To correct a typing mistake

When you find a typing mistake in an entry, you can correct it.

To correct a typing mistake:

- 1 Select the entry containing the mistake.
- 2 In the entry bar, put the insertion point to the right of the mistake.
- 3 Press the Backspace key to back over the entry.
- 4 Type the correction.
- 5 Click the enter box or press the Enter key.

When you select text in the entry bar, you can replace it by typing or by using the Cut, Copy, or Paste commands from the Edit menu.

To replace selected text by typing:

- 1 Select text in the entry bar by dragging across it.
- 2 Type the replacement, or press the Backspace key to remove the whole selection.
The text you type replaces the original text.
- 3 Click the enter box or press the Enter key.

The new text appears in the selected entry.

You can also select just one word of an entry in the entry bar by double-clicking it.

Removing Information

Works lets you remove information from a Database document in three different ways:

- Cutting takes information out of a Database document and puts it on the Clipboard. This is useful for cutting and pasting as well as for removing information. You can cut records, entries, and blocks of data.
- Clearing permanently removes records, fields, entries, or blocks. Cleared information does not go on the Clipboard.
- Deleting a field removes a field from the Database document, including the field name and all entries. This is useful for removing an entire field that you don't need anymore.

If you delete a field or cut or clear information, then decide you don't like the result, you can use Undo to put everything back.

If you cut a field or entry, Works cuts the contents, but leaves a blank field or entry in its place. If you cut a record, Works removes the record and closes up the empty space.

To cut information:

- 1 Select the information you want to cut.
- 2 Choose Cut from the Edit menu.

To replace selected text

To cut information

Works takes the information out of the Database document and places it on the Clipboard. You can paste what you cut back into the Database document at a location you select.

To clear information

When you clear information, Works blanks the selected entries. If you clear a field, entry, or record, Works clears the contents, but leaves a blank field, entry, or record in its place.

To clear information:

- 1 Select the information you want to clear.
- 2 Choose Clear from the Edit menu.

Works removes the information from the Database document, but does not put it on the Clipboard. If you reconsider, choose the Undo command before you do anything else.

To delete a field

When you delete a field, Works removes it from the document and closes up the space it left behind.

To delete a field:

- 1 Select the field.
- 2 Choose Delete Field from the Edit menu.

The field disappears. If you decide you really didn't want to delete the field after all, you can use the Undo command.

To paste the contents of the Clipboard

If you cut a selection, you can paste it back into a Database document at a location you select.

To paste the contents of the Clipboard:

- 1 Select a record or field, or the upper-left entry of a block of entries that you want to paste to.
- 2 Choose Paste from the Edit menu.

Works fills in the selected entries with the information from the Clipboard.

8 Organizing a Database Document

This chapter shows you how to organize a Database document so that you can find information easily.

You'll learn how to:

- Sort information. Put your information in alphabetical, numerical, or chronological order, backwards or forwards.
- Find information. Scroll to view those fields that contain the characters you specify.
- Match records. Quickly call up the records that contain the information you specify.
- Use record selection rules. Use up to six criteria to have Works show you records with specific information only.

By using record selection rules and then saving the selected records with another name, you can create subsets of your Database document. This chapter shows you how.

Sorting Information

If your records aren't in the order you want, you can sort them. Sorting arranges records in alphabetical, numerical, or chronological order, either backwards or forwards. You can sort on any field, in both form and list windows.

Sorting is more than just putting A before Z in your Database document. You can do successive sorts on different fields to group your records just the way you want them. Each sort is done individually by repeatedly choosing the Sort command.

For a multi-level sort, you first sort on the field you're least interested in. For example, to get an address list in order by last name and then by first name, you'd first sort on the first name field. For each level of a multi-level sort, Works retains the order of all previous sorts.

Multi-level sorting lets you presort a large mailing, for example. You can group the records in your mailing list in order by last name, first name, city, state, and zip code. When you put labels on your mass mailing, it will already be sorted by each of these categories.

To sort

Depending on the type of information a field contains, the Sort command from the Organize menu presents different options:

If you select this type of field

You can choose these options

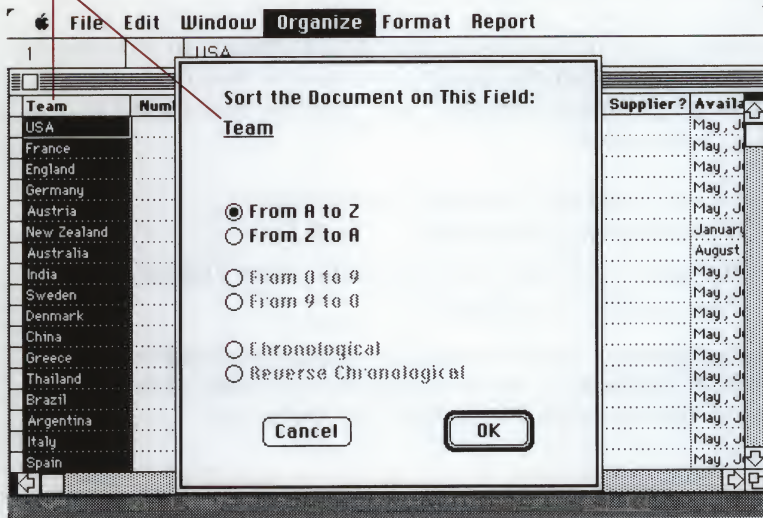
Text	Alphabetical order or reverse
Numeric	Numerical order or reverse
Date or Time	Chronological order or reverse

Note There are some instances when you may want to put numbers into a text field rather than into a numeric field. For example, a numeric field cannot show the leading zero in a zip code such as 08080, so a field containing zip codes should usually be text.

To sort information:

- 1** Select the first field you want to sort on.
You can either click the field name or select any number of entries in a field to select the field to sort on.
- 2** Choose Sort from the Organize menu.
Works tells you which field you're sorting on, and gives you a choice of sorting sequences.

The field you selected is reflected in the dialog box.



3 Click the appropriate sequence.

4 Click the OK button.

Works sorts the entire document based on the field you specified. In this example, the sorted document looks like this:

Requests (DB)					
Team	Number on Team	Requested Food	Cost per Person	Local Supplier?	Availa
Argentina	6	Steaks	\$7.20	Yes	May, J
Australia	8	Barbequed Shrimp	\$6.10	Yes	August
Austria	5	Wiener Schnitzel	\$4.25	Yes	May, J
Brazil	5	Lamb	\$5.60	No	May, J
Canada	8	Pea Soup	\$1.20	Yes	May, J
China	7	Pressed Duck	\$5.90	No	May, J
Denmark	6	Polse	\$4.60	Yes	May, J
Egypt	9	Dates	\$2.05	No	July, A
England	6	Fish and Chips	\$5.40	No	May, J
France	7	Bouillabaisse	\$1.50	Yes	May, J
Germany	8	Brezen	\$1.10	Yes	May, J
Greece	5	Moussaka	\$3.95	Yes	May, J
Holland	4	Goudse Kaas	\$2.95	Yes	June, J
India	6	Samosas	\$2.05	No	May, J
Italy	5	Gnocchi	\$4.75	No	May, J
Mexico	7	Tostadas	\$5.00	No	May, J
New Zealand	6	Kiwis	\$2.70	No	January

Repeat the procedure for any other fields you want to sort on.

To find information quickly


Finding Information Quickly

Sometimes you need to locate specific information in a Database document. For example, suppose you want to find the entries in the Requests sample document that mention "Pressed Duck."

To find the entries:

- 1 Choose Find Field from the Organize menu.
Works displays a dialog box.
- 2 In the text box, type the information you're looking for.
- 3 Click the Find Next button.

Works highlights the first entry that contains your information. When Works looks for the information, it searches all fields in one record, then searches the next record, and so on.


File Edit Window Organize Format Report

6

Pressed Duck

Requests (DB)

Team	Number on Team	Requested Food	Cost per Person	Local Supplier?	Available
Argentina	6	Steaks	\$7.20	Yes	May, Ju
Australia	8	Barbequed Shrimp	\$6.10	Yes	August,
Austria	5	Wiener Schnitzel	\$4.25	Yes	May, Ju
Brazil	5	Lamb	\$5.60	No	May, Ju
Canada	8	Pea Soup	\$1.20	Yes	May, Ju
China	7	Pressed Duck	\$5.90	No	May, Ju
Denmark	6	Polse	\$4.60	Yes	May, Ju
Egypt	9	Dates	\$2.05	No	July, Au
England	6	Fish and Chips	\$5.40	No	May, Ju
France	7	Bouillabaisse	\$1.50	Yes	May, Ju
Germany	8	Brezen	\$1.10	Yes	May, Ju
Greece	5	Moussaka	\$3.95	Yes	May, Ju

To continue finding entries that contain the information you specified, choose Find Field again. The characters you typed will still be in the text box, so you just click the Find Next button.

Matching Records

The Match Records command is a shortcut to seeing a subset of a Database document. You type a few characters or words and let Works match the records that contain that information. When Works is done, you will be looking at only those records that contain the information you specified.

You don't even have to type a whole word or number — just enough information to begin a match, like “Chi” when you're searching for records containing “Chicago”.

Suppose you want to find all the records in the Database document, *Addresses*, that contain the word “Hillside”:

- 1 Choose Match Records from the Organize menu.
Works displays a dialog box.
- 2 In the text box, type the information you want Works to look for. For this example, you would type *Hillside*
- 3 Click the OK button.

Works displays any records that contain your information. If none does, Works tells you so, and lets you try again.

All records that contain Hillside

Addresses (DB)							
First Name	Last Name	Salutation	Address	City	State	Zip	Ho
Paul	Winthrop	Mr.	1122 Haught Dr.	Hillside	NY	10800	(9)
Shirley	Hanes	Ms.	2310 Hillside Dr.	New Orleans	LA	70101	(50)
Jeanne	Barnes	Ms.	1301 Cherry Lane	Hillside	NY	10800	(9)

Match Records is a limited command — you can't do anything with the displayed records except scroll them, view them in a form window, remove the grid, or print the window. You can also cut, copy, or clear the information.

To be able to see all the records and use the rest of the Database commands, you must go back to the full Database document.

- Choose Match Records again to remove the checkmark on the menu.

Works displays all your records and makes available all the Database commands.

To find matching records

To see all records

Using selection rules

Using Selection Rules

When you're looking for very specific information, you can set up record selection rules. Works follows your selection rules as it searches for the information you want. Then Works shows you only those records that meet your selection rules. Selection rules are especially useful when you want to print your information in a report.

How Selection Rules Work

Record selection rules aren't as complicated as they sound. You go through a record selection process yourself when, for example, you look in your address book for people who work in San Diego. You tell yourself, "Look for people who are business associates and work in San Diego." Or, in the language of selection rules: "Type" field contains Business, and "Location" field contains San Diego.

In the same way, you use selection rules in Works to find information that meets your criteria, usually to make some sort of decision. For example, the auditor of a department could have Works find all months in which the department director spent over the allotted \$300 per month and months in which the director traveled frequently, to see the impact of travel on the budget.

A record selection rule is made up of three components: a field name, a comparison phrase, and some record comparison information. The field name corresponds to a field in the active Database document. The comparison phrase comes from the following list:

- | | |
|-------------------------------|-----------------------|
| ■ equals | ■ is not blank |
| ■ is greater than | ■ contains |
| ■ is greater than or equal to | ■ begins with |
| ■ is less than | ■ ends with |
| ■ is less than or equal to | ■ does not contain |
| ■ is not equal to | ■ does not begin with |
| ■ is blank | ■ does not end with |

For text fields, you'll have all the above phrases available. For numeric, date, or time fields, you'll have the first eight of the above list.

The record comparison information is what you type yourself to have Works use for the comparison.

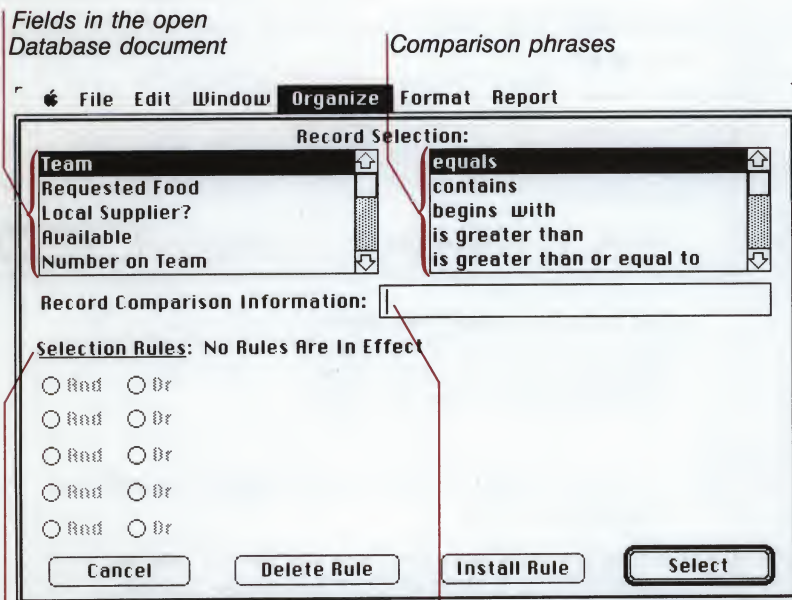
Parts of a selection rule

To make a simple record selection rule:

To make a simple selection rule

- 1 Choose Record Selection from the Organize menu.

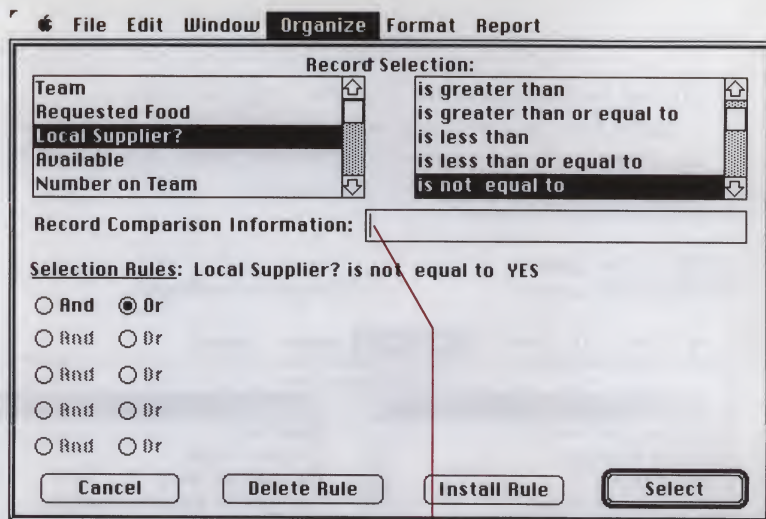
A dialog box appears containing the fields in your Database document, a list of comparison phrases, and a box in which to type record comparison information.



Selection rules are displayed here.

Comparison information goes here.

- 2 From the left box, select the field you want Works to use in the comparison.
You may have to scroll to see all the fields in the box.
- 3 From the right box, select the appropriate comparison phrase.
You will need to scroll to see all the phrases.
- 4 Type the record comparison information in the space provided.
- 5 Click the Install Rule button.
Works displays the completed selection rule.



After you click Install Rule, Works blanks out the Record Comparison Information box, so you can type something else for the next rule.

- 6** Click the Select button to have Works find the records that meet your selection rule.

Works searches through your Database document looking for records that match up. It then displays just those records. If Works can find no matches, it displays an alert box.

When you're looking at selected records, you see a subset of the total Database document. The rest of the records are still in memory.

If you want to look at all your records again, choose Show All Records from the Organize menu. If you'd like to turn your selection into a separate Database document, see "Saving a Selection with a Different Name" at the end of this chapter. You might want to do this if you made a selection in order to give someone a subset of your Database document, or to make mailing labels from a subset of your document.

Setting up more complex rules

Setting Up More Complex Rules

A single selection rule helps to find information — but with Works, you can be much more specific. Connectors ("And" and "Or") let you link together up to six selection rules.

Using connectors

After you set up a single selection rule, but before you carry out the selection with the Select button, Works presents you with these two connectors to choose from:

- **And** lets you link together multiple selection rules. Each additional rule eliminates more of the records in your Database document, so you zero in on the ones you need. When you use “And” between two selection rules, Works selects only those records that satisfy both rules.
- **Or** lets you choose between multiple selection rules. If a record doesn’t match the first rule, it might match the second or third.

You can use these connectors separately or in combination. For example, a developer examining real estate holdings in El Paso might use selection rules like these:

Location equals El Paso

And Type equals Shopping Center

Or Location equals El Paso

And Type equals Residential

These rules eliminate all other properties, such as office buildings or hotels, and all properties not in El Paso. Notice that the following set of rules would not produce the same result:

Location equals El Paso

And Type equals Shopping Center

Or Type equals Residential

Because the “And” connector takes precedence over the “Or” connector, this set of rules would select records containing shopping centers in El Paso, and all residential properties (regardless of location).

You can also use connectors to extend a comparison, setting up a range of items, rather than a single item, to match. An example of a range is:

Sales are greater than \$100,000

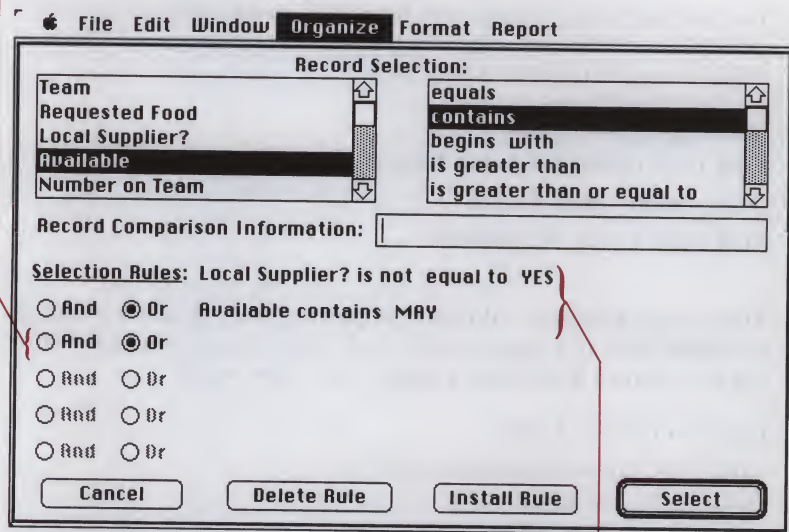
And Sales are less than \$1,000,000

To add further rules

To add further rules to your original rule:

- 1 If you already clicked the Select button after installing your first rule, choose Record Selection from the Organize menu again. Otherwise, you're ready to add another rule.
- 2 Click And or Or.
- 3 Select a field name.
- 4 Select a comparison phrase.
- 5 Type the comparison information.
- 6 Click the Install Rule button.

The next set of connectors becomes available.



All installed rules are displayed here.

You can continue to add rules in this manner until the dialog box is full. When you're done, click the Select button to select the records that match your selection rules.

Changing Your Mind

If you make a mistake or decide not to make a particular selection, or if you just want to see all the records, you can cancel the record selection rules or make new ones.

Until you click the Install Rule button, you can change any part of your rule.

To change part of a rule:

- Select different items from the list boxes or type new comparison information before you click the Install Rule button.

To remove a rule after you click Install Rule:

- Click Delete Rule.

Works erases the last installed rule. You can repeat this step for as many rules as you have.

To see all of your records:

- Choose Show All Records from the Organize menu.

To change part of a rule

To remove a rule

To see all records

Saving a Selection with a Different Name

If you have a main Database document that you use to store most of your information, you can create several smaller documents from it. The smaller documents would contain subsets of the information in the main Database document.

For example, a subset of a customer list might contain shipping addresses for the northeast region. If you save the northeast region data alone in another file, you can print mailing labels for northeast customers using a form in the Word Processor. For more information, see Chapter 21, "Merging: Creating Mailing Labels, Form Letters, and Forms."

To create a subset of a Database document:

- 1 Use the Record Selection command to display only the records you want to include in the smaller document.
- 2 Delete any fields you don't need in the smaller document.
- 3 Choose Save As from the File menu.
The Save As dialog box appears, giving you a chance to save the information with a different name or on a different disk.
- 4 Type a new name for the smaller Database document.
- 5 Click the Save Selected Records Only option.

To create a subset

- 6 Switch to another disk, if you want.
- 7 Click the Save button.

Works saves the smaller Database document with the name you just typed. The original document remains safely on the disk, unchanged. If you want to work with the new subset of data, you need to open the new file.

Note This is a special case for the Save As command in which the newly saved document does not replace the existing document on the screen. This lets you save subsets of a large Database document without affecting the data currently in memory.

9 Making a Report

To print information from a Database document, you need to first set up a report definition. This definition specifies the contents and format of a particular report. A report is a printed listing, in tabular form, of either a selected subset of information in a Database document, or all the information. You can set up several different report definitions for each Database document, depending on the information you need, by selecting certain records or including only particular fields.

This chapter explains how to set up a report definition and use reports with the Database. You'll learn how to:

- Set up a report definition in a report window, including specifying fields to be totaled. You'll also learn how to store the definition with the Database document, so you can print updated reports without having to set up a new report definition each time.
- Copy subtotals and totals to the Clipboard to review the numbers before printing or to use the numbers in a Word Processor or Spreadsheet document.
- Prepare your information and print a report.
- Work with reports by selecting and changing a previously defined report. You'll also learn how to duplicate and delete a report definition.

A report prints a table of information, with a record on each row, like this:

Requests Report

August 10, 1986

<u>Team</u>	<u>Number on Team</u>	<u>Requested Food</u>	<u>Cost per Person</u>	<u>Local Supplier?</u>
Argentina	6	Steaks	\$7.20	Yes
Australia	8	Barbequed Shrimp	\$6.10	Yes
Austria	5	Wiener Schnitzel	\$4.25	Yes
Brazil	5	Lamb	\$5.60	No
Canada	8	Pea Soup	\$1.20	Yes
China	7	Pressed Duck	\$5.90	No
Denmark	6	Porse	\$4.60	Yes
Egypt	9	Dates	\$2.05	No
England	6	Fish and Chips	\$5.40	No
France	7	Bouillabaisse	\$1.50	Yes
Germany	8	Brezen	\$1.10	Yes
Greece	5	Moussaka	\$3.95	Yes
Holland	4	Goudse Kaas	\$2.95	Yes
India	6	Samosas	\$2.05	No
Italy	5	Gnocchi	\$4.75	No
Mexico	7	Tostadas	\$5.00	No
New Zealand	6	Kiwis	\$2.70	No
Spain	6	Tapas	\$4.35	Yes
Sweden	5	Knackebrod	\$1.95	Yes
Thailand	4	Peanut Chicken	\$5.25	Yes
USA	10	Hamburgers	\$5.10	Yes

For information on other ways to print Database information, see Chapter 21, "Merging: Creating Mailing Labels, Form Letters, and Forms."

Before You Begin

Before you open a report window and start defining a report, you should understand the relationship between report definitions and the open Database document. When you choose New Report from the Report menu, Works opens a window displaying a report definition that consists of selection rules, the order and width of fields, and field sums.

When you choose New Report to create a new report, the initial information in the report window comes from the open Database document. Changes you make to the report definition will not affect the Database document itself. This feature allows you to define numerous independent reports, each containing different information.

Since the initial values for a report definition are taken from the open Database document, you can set up initial record selection rules and field widths for a report definition either in a list window or in a report window. You may want to set up your rules or widen any fields in a list window while you can see all the records. When you are working in a report window, you'll see only the first three records.

To set up a new report definition, you'll choose the New Report command and follow these steps:

- Specify headers and footers, paper size, printing orientation, and margins with the Page Setup command from the File menu.
- Create or review any record selection rules, and make any necessary changes.
- Size and arrange fields, and specify which fields to print by moving any you don't want printed outside the report margin.
- Specify any fields to sum, using the TotalsPage menu.
- Specify when to subtotal groups of records, using the TotalsPage menu.
- Specify when to start a new page after a subtotal, using the TotalsPage menu.
- Specify whether or not to print a grid, using the Format menu.
- Give the report a new title if you want.

All of this information makes up your report definition. The rest of this chapter details the procedures.

Working in a list window

Setting up a new report definition

Setting Up a Report Definition

A report definition tells Works what information to print from a Database document. You use record selection rules to choose just the records that meet the criteria for your report. For example, if you're looking at credit ratings for customers, you can print a report of just those customers whose bills are 90 days past due.

Because you might want to print several different reports from the same Database document, Works lets you store up to eight report definitions with each document. Whenever you want to print a report, you choose one of the report definitions and print the report.

To define a new report

To define a new report:

- Choose New Report from the Report menu.

Works displays the report window and adds the TotalsPage menu to the menu bar.

The upper area of the report window displays selection rules.

Report window Report title New menu

Selection Rules:

Local Supplier? equals YES
or
Available contains MAY

Team	Number on Team	Requested Food	Cost per Person	Local Supplier?	Available
Argentina	6	Steaks	\$7.20	Yes	May, June
Australia	8	Barbequed Shrimp	\$6.10	Yes	August, Se
Austria	5	Wiener Schnitzel	\$4.25	Yes	May, June
Spain	6	Tapas	\$4.35	Yes	May, J
Sweden	5	Knackebrod	\$1.95	Yes	May, J

Left edge marker Selection rules in effect are carried over from the Database document.

The lower area of the report window displays the first three records as they will be printed.

Once in a report window, you can set up selection rules. But you cannot use the mouse to select records or entries. You can select only individual fields. To change the selection from one field to another, just click the field name you want to select.

Setting Up Paper Size, Printing Orientation, Headers and Footers, and Margins

Use the Page Setup command from the File menu to set up your report page. Paper size, printing orientation, and margins determine the amount of information that can be printed for each record.

You will want to use wide orientation if you want to print more fields in your report than will fit on a standard 8-1/2" x 11" page.

You'll be able to see your margins at once by looking at the edge markers (downward-pointing triangles) in the report window.

If you need to fit more fields in, you can decrease the margins by using the Page Setup command again.

For complete information about using the Page Setup command, see "Page Setup" in Chapter 2.

Arranging the Fields to Print

When preparing a report definition, you decide what order to put the fields in and which fields to include in the printed report. Once you have made these decisions, you may need to either adjust some field widths or adjust the margins of your report.

Before you begin, look at the report window and locate the edge markers. The two markers — downward-pointing triangles — show you how wide your report will be. You determined where these markers are when you set the left and right margins in the Page Setup dialog box. Fields to the left of the right edge marker are included in the report. Fields completely or partially to the right of this marker won't be included.

To rearrange fields:

You can rearrange the horizontal position of the fields to be printed.

- Drag the field name of any field left or right until the field name of the field you want to be adjacent to is highlighted.

To rearrange fields

To move fields in and out of a report

If you have many fields in your Database document, some of them may not fit within the margins of your report. In this case, you can take unwanted fields out of the report by dragging.

In other cases, however, you may not have enough fields to completely fill the space between the edge markers. When this occurs, you will not be able to drag out unwanted fields until you either widen one or more fields or change the margins with the Page Setup command. The fields you include in a report must be wide enough to fill the area between the margins.

To take a field out of a report:

- Drag the field to the right of the right edge marker.

To put a field back into a report:

- Drag the field to the left of the right edge marker.

*These fields are included
in the report.*

*These fields are not
included in the report.*

Requests Report 1

Selection Rules:

Local Supplier? equals YES
or Available contains MAY

Requested Food	Cost per Person	Local Supplier?	Available	Comment	Supplier
Steaks	\$7.20	Yes	May, June	Just like home	Fitzge
Barbequed Shrimp	\$6.10	Yes	August, September	Spicy barbeque sauce	Kelly
Wiener Schnitzel	\$4.25	Yes	May, June	High-protein	Cafe
Spain	6	Tapas	\$4.35	Yes	May, J
Sweden	5	Knackebrod	\$1.95	Yes	May, J

Right edge marker

Using the TotalsPage Menu

Your Database document might be enhanced by including totals that are sums of a column of numbers. For example, a payroll report might sum the total payroll. Works also lets you set up sub-totals, such as payroll per department in addition to the total payroll. With the TotalsPage menu in the Database, you can select fields to be totaled or subtotaled. You can review the totals before printing the report, and you can create summary documents with just this totals information.

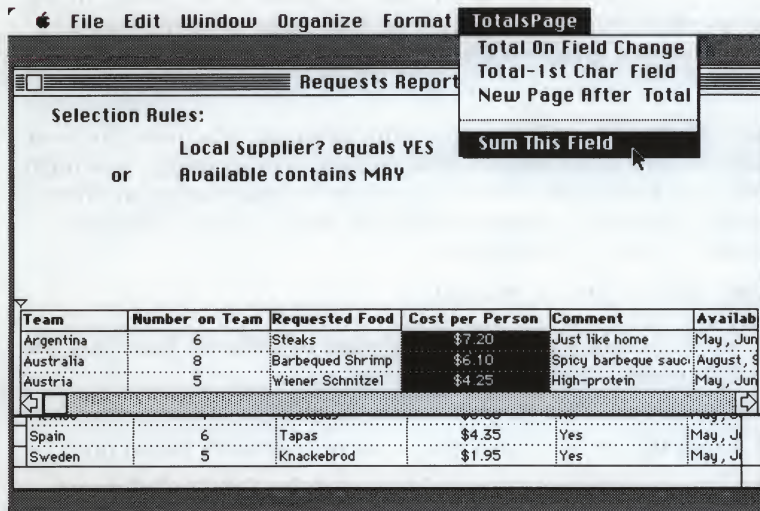
When you use the TotalsPage menu to specify totals, subtotals, or new pages, the commands in effect for a selected field are checked on the menu. To change your specifications, choose any command again to remove the checkmark.

The simplest total sums all the numbers in a field.

To total a field:

- 1 Select a numeric field that you want totaled.
- 2 Choose Sum This Field from the TotalsPage menu.

To total a field



The total for that field will appear at the bottom of the field when you print the report.

To subtotal when field data changes

For fields that you've specified to be totaled, you can also specify two kinds of subtotals. In both cases, you will get more meaningful results if you sort your records before specifying the subtotals.

You can set up a report to print subtotals whenever the contents of a specified key field change. Many Database documents can be organized into divisions or groups. For example, payroll can be divided into departments. For a payroll Database document, you might want a subtotal whenever the department name changes. In this case, the field containing department names would be the key field.

Here's how to set up such a subtotal:

- 1 Select a numeric field that you want to subtotal. Just click the field name.
- 2 Choose Sum This Field from the TotalsPage menu.
- 3 Select the key field that you want the subtotals based on.
- 4 Choose Total on Field Change from the TotalsPage menu.

When you print the report, Works will print a subtotal every time the contents of the key field change. For example, in a payroll report, you'd get a subtotal after all the entries for Manufacturing, and another after all the entries for Sales, and so forth. Then, Works prints a grand total at the end of the report.

To subtotal when the first character in a field changes

You can also set up a report to print subtotals whenever the first character in a specified key field changes. For example, you might want to get subtotals for each group of records having an entry in the last name field beginning with the same letter, so that you subtotal A's, B's, C's, and so on.

To set up this kind of subtotal:

- 1 Select a numeric field that you want to subtotal. Just click the field name.
- 2 Choose Sum This Field from the TotalsPage menu.
- 3 Select the key field that you want the subtotals based on.
- 4 Choose Total-1st Char Field from the TotalsPage menu.

When you print the report, Works will print a subtotal each time the first character of the entries in the key field changes.

To make reports easy to read, you may prefer to start a new page after printing each subtotal. That makes a subtotal the last printed line on each page.

To start a new page after each subtotal, first complete either of the two procedures shown above for specifying subtotals. After you choose either Total on Field Change or Total-1st Char Field:

- ☐ Choose New Page After Total from the TotalsPage menu.

When you print the report, Works will skip to a new page after it prints each subtotal.

To print a new page after a subtotal

Printing with or without a Grid

Works normally prints a grid separating the records and fields in a report. To print the report without a grid:

- ☐ Choose No Grid from the Format menu.

A checkmark on the menu indicates whether Show Grid or No Grid is currently in effect.

Changing a Report Title

Works proposes a title for a report based on the name of the associated Database document. You can change this title at any time to make it more meaningful to you.

To change a report title:

- ☐ 1 From the report window, choose Change Report Title from the Edit menu.
- ☐ 2 Type a new name in the space provided.
- ☐ 3 Click the OK button.

To change a report title

Storing a Report Definition

After you have completed a report definition, you can choose to either preview any subtotals or totals you may have specified (see "Previewing Report Totals" below), print the report immediately, use the Window command to return to a list or form window, or close the report window. When you close the report window, Works stores the report definition with the associated Database document. When you later save the Database document, the report definition is saved along with it.

To preview totals before printing

Previewing Report Totals

After setting up your report definition, if you've specified fields to be summed, you can preview the totals and subtotals before you print the report.

To preview the totals:

- From the report window, choose Copy Totals from the Edit menu.
Copy Totals is available only after you have specified at least one field to be summed.

When you specify subtotals with the Total on Field Change command, Works copies the records containing subtotals and the grand total to the Clipboard. When you specify subtotals with the Total-1st Char Field command, Works copies the first record of each group to the Clipboard, substituting the subtotal of each entire group for the number related to each particular record. You can then open the Clipboard to see this information.

To create summary documents

Once the data is on the Clipboard, you can use it just like anything else on the Clipboard. For example, you can paste the information into a Word Processor or Spreadsheet document to create a summary document containing just the totals information, without all the supporting numbers.

Printing a Report

To print a report

There are three stages in printing a report: preparing the information, opening a report window, and printing the report.

To prepare your information:

- 1 Open the Database file from which you want to print a report.
- 2 Sort the records to have them appear in the order you want.
- 3 Review any formatting characteristics specified with the Set Field attributes command.

To open a report window:

- 1 Choose Select Report from the Report menu.
The Select Report dialog box appears, containing a list of all reports that you've defined for the active Database document.
- 2 Select the name of the report that you want to print.

- 3 Click the OK button.
Works displays the report window.
- 4 Make any changes to the definition.

To print the report:

- 1 Choose Print from the File menu.
- 2 Review the options to make sure they're all set as you want them, and make any necessary changes.
- 3 Click the OK button.

Works prints your report. If your printer is disconnected or you run out of paper, Works displays a message.

Working with Reports

Many businesses and professionals print regular revisions of reports — address lists, customer lists, bad check lists, or payment overdue lists, for example. The first time you define such a report may be the only time you need to, because you can select that same report definition each time you need to print the report. As long as your Database document contains the fields contained in the report definition, there's nothing else to worry about, even if the contents of the fields change completely.

It's easy to switch between a report window and a list or form window by using the Window and Report menus. Remember that any changes you make in the report window apply only to that report — they are not carried back into the list or form window. Each report can use its own set of record selection rules. This relationship also holds true for the order and width of fields, which can be adjusted in the report window with no effect on the Database document.

To select a previously defined report definition:

- 1 Sort or rearrange records in the Database so they'll print in the desired order.
- 2 Choose Select Report from the Report menu.
The Select Report dialog box appears. Any reports that you've defined for the active Database document appear in the box.
- 3 Click the name of the report definition that you want.
- 4 Click the OK button.

The menus change in the menu bar, and Works displays the report definition you've selected.

To select a previously defined report definition

Changing a report

When a report definition window is active, you can change the definition if you want or you can print the report as specified. For example, you can rearrange fields, change the selection rules, or add or change totals. The changes you make will be stored with the associated Database document. When you save the Database document, the report definition will be saved along with it.

Duplicating and Erasing Report Definitions

You may want to copy a previously defined report definition, rather than create from scratch another report definition that's only slightly different. You can have up to eight report definitions for any Database document. If you already have eight, you'll need to erase one definition in order to add another.

To duplicate a report definition:

- 1** In a form or list window, choose Duplicate Report from the Report menu.
- 2** Select the report definition you want to duplicate from the list.
- 3** Click the OK button.

Works duplicates the report definition, displays it in a report window, and gives it a name. The name of the report consists of the name of the Database document, the word "Report," and a number indicating how many reports are connected with that Database document. You can now make changes to the duplicate to create a new report.

To erase a report definition

To erase a report definition:

- 1** In a form or list window, choose Erase Report from the Report menu.
- 2** Select the report definition you want to erase.
- 3** Click the OK button.

Works erases the report definition.

10 Database Command Reference

The Apple, File, and Window menus are identical for all Microsoft Works tools. For information on these menus, see Chapter 2, "Common Tasks Command Reference."

This chapter discusses all the shaded commands shown below.

Edit	
Undo	⌘Z
Cut	⌘H
Copy	⌘C
Paste	⌘V
Clear	
Select All	
Insert Record	⌘I
Change Field Name...	
Add New Field...	
Delete Field	

Organize	
Find Field...	⌘F
Match Records...	⌘M
Record Selection...	
✓Show All Records	
Sort...	⌘A

Format	
Show List	⌘L
✓Bold Field Name	
Bold Field Data	
✓Border Field Name	
✓Border Field Data	
Show Grid	
No Grid	
Set Field Attributes...	

Report	
Select Report...	
New Report...	
Duplicate Report...	
Erase Report...	

Edit	
Undo	⌘Z
Cut	⌘H
Copy Totals	⌘C
Paste	⌘V
Clear	
Change Report Title...	

Organize	
Record Selection...	
✓Show All Records	

Format	
✓Show Grid	
No Grid	

TotalsPage	
Total On Field Change	
Total-1st Char Field	
New Page After Total	
Sum This Field	

You can invoke some Works commands from the keyboard, as well as by using the mouse. The available Command-key combinations are shown on the menus and in Appendix D.

An alphabetical list of commands appears in the index under "Command."

The Edit Menu

The first five commands on the Edit menu are common to all tools in Works. For information on these commands, see "The Edit Menu" in Chapter 2.

This section explains additional Edit menu commands that are available in the Works Database.

Select All

Edit	
Undo	⌘Z
Cut	⌘H
Copy	⌘C
Paste	⌘V
Clear	
Select All	
Insert Record	⌘I
Change Field Name...	
Add New Field...	⌘A
Delete Field	

Select All

The Select All command selects all records in a Database document in the list window. It does not select any records that are not currently displayed because you have used the Match Records or Record Selection command.

To remove the selection, click the deselect box to the far left of the field names.

Insert Record

Edit	
Undo	⌘Z
Cut	⌘H
Copy	⌘C
Paste	⌘V
Clear	
Select All	
Insert Record	⌘I
Change Field Name...	
Add New Field...	⌘A
Delete Field	

Insert Record

The Insert Record command inserts a blank record immediately before the selected record in a list window or before the record currently displayed in a form window. In a form window, the command is dimmed until you make a selection.

Change Field Name

The Change Field Name command changes the name of a field. To change a field name, either select a field and choose Change Field Name, or double-click a field name in either a list or form window.

Field Name:

Untitled2

Cancel OK

Type the new name in the Field Name box, then click OK.

Add New Field

The Add New Field command adds a new field to a list or form window.

Field Name:

Untitled2

Cancel Add Field

Type a name for the new field, then click the Add Field button.

In a list window, Works adds the field to the right of the right-most field. In a form window, Works adds the field in the first blank area it finds that is large enough to accommodate a field.

In either kind of window, you can move the field wherever you want. You can add a field at any time.

Change Field Name

Edit	
Undo	⌘Z
Cut	⌘H
Copy	⌘C
Paste	⌘V
Clear	
Select All	
Insert Record	⌘I
Change Field Name...	
Add New Field...	⌘A
Delete Field	

Add New Field

Edit	
Undo	⌘Z
Cut	⌘H
Copy	⌘C
Paste	⌘V
Clear	
Select All	
Insert Record	⌘I
Change Field Name...	
Add New Field...	
Delete Field	

Delete Field

Edit	
Undo	⌘Z
Cut	⌘H
Copy	⌘C
Paste	⌘V
Clear	
Select All	
Insert Record	⌘I
Change Field Name...	
Add New Field...	⌘A
Delete Field	

Delete Field

The Delete Field command deletes a field, including both the field name and the data in the field, for all records.

First, select the field to be deleted by clicking the field name. You can do this in either a list or form window. In a list window, Works highlights all the data in the field; in a form window, Works highlights the data for the displayed record. Then, choose Delete Field to delete the field.

You can undo Delete Field immediately after you use it with the Undo command from the Edit menu.

Find Field

Organize	
Find Field...	⌘F
Match Records...	⌘M
Record Selection...	
✓ Show All Records	
Sort...	⌘A

The Organize Menu

Find Field

The Find Field command finds and selects, one at a time, all fields in a Database document that contain a specified pattern of characters.

When you choose Find Field, Works displays a dialog box in which you can type the character pattern that you want to find.

The dialog box titled "Find Next Field That Contains:" features a text input field at the top. Below it is a checked checkbox labeled "Search Text Fields Only". At the bottom, there are two buttons: "Cancel" on the left and "Find Next" on the right.

Find Next Field That Contains Type the character pattern you want to find.

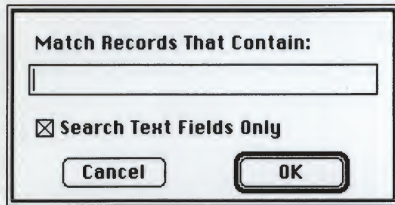
Search Text Fields Only This is checked as a preset option. It speeds your search for text in a document containing many numeric, date, or time fields. If you want Works to look in all fields, click this option to remove the checkmark.

Click the Find Next button or press the Return key to start the search. Works selects the first entry that matches your criteria. To find the next and successive occurrences of the specified pattern, choose Find Field again. The text you typed will already be in the text box, so you only need to click Find Next or press the Return key to restart the search and have the next occurrence selected.

Match Records

The Match Records command finds and displays all records in a Database document that contain a specified pattern of characters anywhere in the record.

When you choose Match Records, Works displays a dialog box in which you can type the character pattern that identifies the records you want to find.



Match Records That Contain Type the character pattern you want to find.

Search Text Fields Only This is checked as a preset option. It speeds your search for text in a document containing many numeric, date, or time fields. If you want to look in all fields, click this option to remove the checkmark.

Click the OK button or press the Return key to start the search. Works displays only those records containing the pattern. To end the command and display all records again, choose Match Records again.

When you choose Match Records from a form window, Works displays the records in a form window, and you can scroll through them.

When you choose Match Records from a list window, Works displays the records in a list window, and you can scroll through them. If you double-click a record in the list, Works displays that record in a form window, and the Match Records command ends.

Match Records



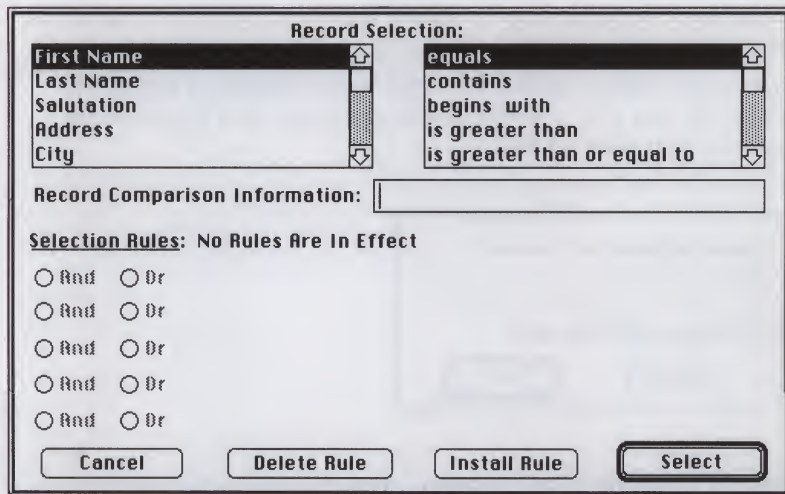
Record Selection



Record Selection

The Record Selection command defines up to six different selection rules by which records in a Database document are selected, and then finds and displays those records. You can then work with those records alone.

Record Selection is useful in preparing reports or in creating other smaller Database documents with the Save As command.



To use Record Selection, you build one or more selection rules by selecting a field and a comparison phrase, and entering record comparison information. In the list box on the left, select a field on which you want Works to base the record selection. If you have more fields in your document than can fit in the window, scroll the window until you see the field you want.

In the list box on the right, select the comparison phrase to use in your first record selection rule. Scroll the window to see all the available phrases. Notice that for text fields you have more phrases available than for numeric, date, or time fields.

Record Comparison Information Type the text of your comparison information to complete the record selection rule. Then click the Install Rule button.

If you want to extend your selection rules, or if you want to make your rule more specific, select a connector ("And" or "Or") from those below and to the left of the completed rule and repeat the process of selecting a field, selecting a comparison phrase, and entering comparison information.

You can have up to six record selection rules.

Click the Install Rule button (or press Command-I) to install each new selection rule. Before you click this button, be sure to review the components of your rule. You can make any changes you want, including pressing the Cancel button, up until you click Install Rule. Thereafter, you'll need to delete the rule and start over to make any changes.

When you are satisfied with your selection rules, and want to find records based on them, click the Select button.

Click Delete Rule (or press Command-D) to delete the last rule you installed.

Click Cancel to leave the Record Selection rules as they were before you chose the command and to return to the original Database document.

If no records meet the rules you specify, Works displays an alert box.

To turn off these rules and display all the records, click Show All Records from the Organize menu.

Show All Records

The Show All Records command terminates the effect of the Record Selection command and displays all the records in a Database document in either a list or form window.

Show All Records is useful for expanding the display that results from the Record Selection command.

Sort

The Sort command arranges all the records in a Database document in order, based on the entries in a specified field.

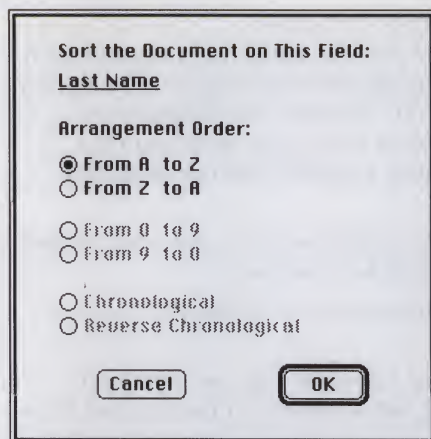
To select the field you want to sort on, either click the field name, or select one or more entries in the field.

Show All Records

Organize	
Find Field...	⌘F
Match Records...	⌘M
Record Selection...	
✓Show All Records	
Sort...	⌘A

Sort

Organize	
Find Field...	⌘F
Match Records...	⌘M
Record Selection...	
✓Show All Records	
Sort...	⌘A

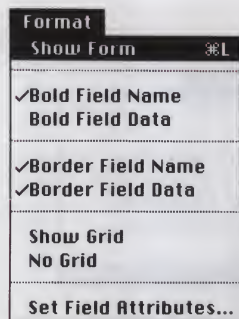


Click an option to select the sequence you want. Then click the OK button or press the Return key.

Note Each type of field — text, numeric, date, or time — has two possible sort orders: forward and reverse. For example, if you select a date field, the available options are Chronological and Reverse Chronological.

The Format Menu

Show List Show Form



Show List/Show Form

The Show List and Show Form commands tell Works what format to use in displaying your data.

Choose Show List to view your data as a list of records in tabular form. This format allows you to see multiple records at the same time. If you have many fields, you may see only parts of records on your screen. To see other records or fields, use the scroll bars.

Choose Show Form to view your data as a form with one complete record displayed.

You can switch back and forth between these views at any time by choosing these commands from the menu. You can also switch views by double-clicking in the white space of a form or in a record selector box in a list. When you do the latter, the form window displays the record you selected. You can then scroll to see other records.

Bold Field Name/Bold Field Data

These commands display the field name, the field data, or both, in bold type in a form window.

Choose Bold Field Name to make the field name bold. Choose Bold Field Data to make the data in a field bold. When chosen, the commands are checked on the menu. Choose again to remove the checkmark.

Bold Field Name Bold Field Data

Format	
Show Form	%L
<input checked="" type="checkbox"/> Bold Field Name	
<input checked="" type="checkbox"/> Bold Field Data	
<input checked="" type="checkbox"/> Border Field Name	
<input checked="" type="checkbox"/> Border Field Data	
Show Grid	
No Grid	
Set Field Attributes...	

Border Field Name/Border Field Data

These commands display the field name, the field data, or both, with a border in a form window.

Choose Border Field Name to display the field name with a border. Choose Border Field Data to display the data in a field with a border. When chosen, the commands are checked on the menu. Choose again to remove the checkmark.

Border Field Name Border Field Data

Format	
Show Form	%L
<input checked="" type="checkbox"/> Bold Field Name	
<input checked="" type="checkbox"/> Bold Field Data	
<input checked="" type="checkbox"/> Border Field Name	
<input checked="" type="checkbox"/> Border Field Data	
Show Grid	
No Grid	
Set Field Attributes...	

Show Grid/No Grid

These commands tell Works whether or not to display the grid lines on your Database document. They are available when you are working in a list window or a report window.

Choose Show Grid to display grid lines. Choose No Grid to show no grid lines. The active command is checked on the menu.

Show Grid No Grid

Format	
Show Form	%L
<input checked="" type="checkbox"/> Bold Field Name	
<input checked="" type="checkbox"/> Bold Field Data	
<input checked="" type="checkbox"/> Border Field Name	
<input checked="" type="checkbox"/> Border Field Data	
Show Grid	
No Grid	
Set Field Attributes...	

Set Field Attributes

Format	
Show Form	%L
✓Bold Field Name Bold Field Data	
✓Border Field Name ✓Border Field Data	
Show Grid	No Grid
Set Field Attributes...	

Set Field Attributes

The Set Field Attributes command specifies the attributes of field data.

When you create a new field, the information in the field is treated as normal text, left-aligned.

To specify the attributes of a field, select a field and choose Set Field Attributes, or double-click an entry. Works then displays a dialog box.

Set Field Attributes For Available			
Type:	Display:	Align:	Style:
<input checked="" type="radio"/> Text	<input type="radio"/> General	<input checked="" type="radio"/> Left	<input type="checkbox"/> Bold
<input type="radio"/> Numeric	<input type="radio"/> Fixed	<input type="radio"/> Center	<input type="checkbox"/> Underline
<input type="radio"/> Date	<input type="radio"/> Dollar	<input type="radio"/> Right	<input type="checkbox"/> Commas
<input type="radio"/> Time	<input type="radio"/> Percent	<input type="checkbox"/> Decimal Places	
	<input type="radio"/> Scientific		
<input type="checkbox"/> Computed	<input type="checkbox"/> Show Day	Cancel	OK

Type Options

Text Field data can be any alphanumeric characters.

Numeric Field data must be numbers.

Date Field data must be entered in one of eight specified date formats. For more information, see "Changing the Format of a Field" in Chapter 7.

Time Field data must be entered in one of four specified time formats. For more information, see "Changing the Format of a Field" in Chapter 7.

Computed If you define your data as Numeric, you can specify that the contents of a field are to be computed by arithmetic operations performed on numeric data in other fields.

Click Numeric, then click the Computed box. When you leave the dialog box, the insertion point, preceded by an equal sign (=), is placed in the entry bar. You can then type a formula.

Type a formula for a computed field using field names, numbers, and the following symbols:

Symbol	Meaning
+	Add
-	Subtract
-	Negate (if used with one operand only)
* (asterisk)	Multiply
/	Divide
()	Group of operations
^	Raise to a power

You can also include all functions available in the Spreadsheet, except those that require ranges for arguments. For more information, see Chapter 15, "Spreadsheet Functions."

Instead of typing field names into a formula, you can also click them.

Display Options

General Values are displayed as precisely as possible, given the width of the entry. Trailing zeros are not displayed.

Fixed Values are displayed with a fixed number of places to the right of the decimal point.

Works uses Fixed format for all Database values unless you specify otherwise.

Initially, the fixed number of places is two, unless you change it in the Decimal Places box.

Dollar Values are displayed in dollars and cents format, that is, with dollars to the left of the decimal point and two digits representing cents to the right. Or, values are displayed as whole numbers with no decimal point. A dollar sign (\$) appears to the left of the most significant digit.

Negative numbers are enclosed in parentheses.

Type 0 in the Decimal Places box to display whole dollars with no decimal point. Type 2 to display dollars and cents.

The value is adjusted to the nearest whole dollar or whole penny depending upon your choice of 0 or 2 decimals. For example, the value 9.505 is displayed as \$10 if zero decimal places are specified; it is displayed as \$9.51 if two decimal places are specified.

Percent The numeric value of an entry is multiplied by 100 and displayed with a percent sign (%) to its immediate right.

You can also specify the number of decimal places to be displayed in the percentage. The value .156, for example, is displayed as 15.6% if you type 1 in the Decimal Places box, and 16% if you type 0.

Scientific Scientific notation allows you to express very large or very small numbers. In scientific notation, a numeric value has three parts: a decimal number in the form *n.nn*, the exponentiation symbol E or e, and an integer in the form $\pm ii$ for the exponent.

For example, the value 1,210 would be displayed as 1.21E+03, where 1.21 is the decimal number, E is the exponentiation symbol, and +03 is the exponent.

Show Day If you define your field type as Date, you can specify that the day of the week be displayed as well.

Decimal Places The number in this box specifies the number of digits to be displayed to the right of the decimal point, if you define a field as Fixed, Dollar, Percent, or Scientific.

The preset value is 2. Change this by typing a number from 0 to 15.

Align Options

These options allow you to align the contents of selected entries. All entries in the selected fields will be displayed as you specify here.

- ☐ Left
- ☐ Center
- ☐ Right

Style Options

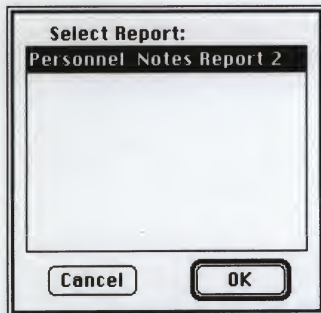
These options allow you to change the style of your data. All entries in the selected fields will be displayed as you specify here.

- ☐ Bold
- ☐ Underline
- ☐ Commas: This option is available only for numeric fields.

The Report Menu

Select Report

The Select Report command selects a previously defined report definition. Once it's selected you can make changes to it or print the report. If you change the selection rules, these changes will be saved automatically along with the report definition.



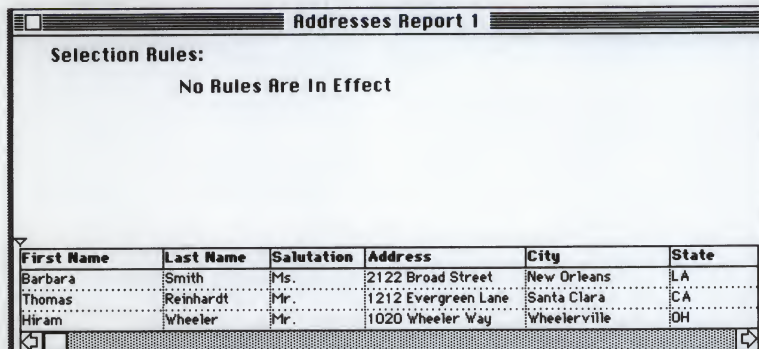
Select the report definition you want, then click the OK button or press the Return key; or, double-click the report name.

Works opens a report window containing the selected report definition.

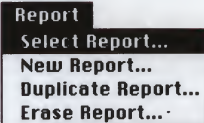
New Report

The New Report command creates a new report definition.

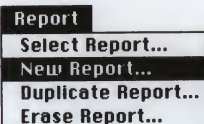
When you choose New Report, Works opens a report window.



Select Report



New Report



Selection Rules With commands from the Organize menu, you can specify the records you want to include in your report. If you specify selection rules in the Database document immediately before choosing New Report, those rules will appear in the report window as well.

When you close the report window, Works adds the definition to your list of available reports.

Duplicate Report

Report

Select Report...

New Report...

Duplicate Report...

Erase Report...

Duplicate Report

The Duplicate Report command duplicates a previously defined report definition. This is useful for creating two or more reports that are very similar.



Select the report definition you want to duplicate, then click the OK button or press the Return key.

Works opens a report window with a copy of the selected definition, but with a new title. Now you can make any changes you want.

When you close the report window, Works adds the definition to your list of available reports.

Erase Report

The Erase Report command deletes a report definition from your Database document.



Select the report you want to delete, then click the OK button or press the Return key.

Works deletes the definition from the Database document.

Erase Report

Report

Select Report...
New Report...
Duplicate Report...
Erase Report...

In the Report Window

Once you open a report window, the menu bar changes and a different set of commands is available to you. Some of these commands are identical to the regular Database commands; others are completely new. All of the report window commands are described in this section.

The Edit Menu

Copy Totals

The Copy Totals command copies totals and subtotals, specified with commands from the TotalsPage menu in a report window, to the Clipboard. This allows you to preview the information before printing the report.

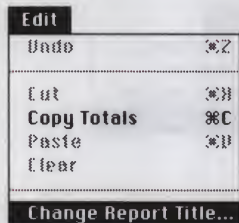
Once information is on the Clipboard, you can paste it into another document, just as you can any other information on the Clipboard. For example, you can use the totals and subtotals as a summary of the data in your Database document.

Copy Totals

Edit

Undo	⌘Z
Cut	⌘H
Copy Totals	⌘C
Paste	⌘V
Clear	
Change Report Title...	

Change Report Title

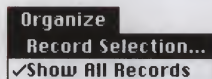


Change Report Title

The Change Report Title command changes the title of a report.

The new title appears in the title bar of the report window and in the dialog boxes that contain a list of report titles. It is also reflected in the header or footer of a report if you specify the filename to be printed with the &F command.

Record Selection

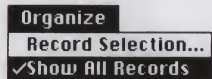


Record Selection

The Record Selection command specifies which records in a Database document to print in a report. It works exactly the same as the Record Selection command from the main Database Organize menu.

When you print the report, Works prints only those records meeting your record selection rules.

Show All Records

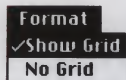


Show All Records

The Show All Records command tells Works to print all records in a Database document in a report, rather than only those that match the selection rules.

When you choose Show All Records, Works puts all records on the desktop; however, you will see only the first three records in the report window.

Show Grid No Grid



The Format Menu

Show Grid/No Grid

These commands specify whether a report should be printed with or without grid lines.

Choose Show Grid to print a report with grid lines. Choose No Grid to print a report without grid lines. The active command is checked on the menu.

The TotalsPage Menu

Total on Field Change/Total-1st Char Field

These commands tell Works when to print subtotals of the numeric values in the field you've specified to be summed.

To use either Total on Field Change or Total-1st Char Field, you select a key field which is different from the field designated to be summed, then choose one of these commands. After the contents of each record is printed, Works compares the contents of the key field in the printed record with the contents of the key field in the next record to be printed.

When you choose the Total on Field Change command, Works looks to see if the contents of the two compared fields are different. If they are, Works temporarily stops printing records, and prints the subtotal of those fields specified by the Sum This Field command.

When you choose the Total-1st Char Field command, Works looks to see if the first character of the two compared fields is different. If it is, Works temporarily stops printing records, and prints the subtotal of those fields specified by the Sum This Field command.

In both cases, the subtotals for the entire report are accumulated as they are printed. At the end of the report, Works prints a grand total of all the subtotals.

New Page After Total

The New Page After Total command tells Works to print the next Database record on a new page after a subtotal is printed.

After you select a field to be summed, choose either Total on Field Change or Total-1st Char Field. Then choose the New Page After Total command.

New Page After Total is associated with the specific Total on Field Change or Total-1st Char Field command you choose immediately before you choose New Page After Total. This way, you can specify that a new page be started after one type of subtotal, but not after another.

Total on Field Change Total-1st Char Field

TotalsPage
Total On Field Change
Total-1st Char Field
New Page After Total
Sum This Field

New Page After Total

TotalsPage
Total On Field Change
Total-1st Char Field
New Page After Total
Sum This Field

Sum This Field

TotalsPage

Total On Field Change

Total-1st Char Field

New Page After Total

Sum This Field

Sum This Field

The Sum This Field command tells Works which fields to sum and then print totals for. Subtotals are derived from the numeric values of the specified fields and are accumulated as the records are printed or when you choose Copy Totals from the Edit menu.

Select the field you want Works to total, then choose Sum This Field. When the command is checked on the menu, it is effective for the currently selected field.

When you print the report, Works prints the specified totals.

If you choose to sum one or more fields, but do not specify when to print subtotals with Total on Field Change or Total-1st Char Field, totals are printed at the end of the report for all specified fields.

After all records have been printed, Works prints a grand total — the sum of all previously printed totals.

The Spreadsheet

The Works Spreadsheet automates the kind of figuring you do with a sheet of paper and a calculator: taxes, sales projections, cash-flow analyses, or personal net worth statements. The Spreadsheet gives you cells to fill with labels, numbers, and formulas. You type in the data, and Works does the calculating for you.

You can change the numbers to see what happens, and let Works recalculate again, automatically. Once you have the numbers in place, you can chart your figures to see how they look. Then, when you change a number, you can watch the chart change at the same time. When you have the result you want, you can print it.

The formulas you enter into the Spreadsheet can include everything from simple addition and subtraction to trigonometric equations and logical comparisons.



These six chapters explain how to use the Spreadsheet:

- Chapter 11, "Entering Information," shows you what a Spreadsheet document looks like, how to type labels, numbers, and formulas into the Spreadsheet, and how to use the Spreadsheet's built-in functions.
- Chapter 12, "Working with the Spreadsheet," shows how to make changes or additions to your Spreadsheet document, and different ways to look at it.
- Chapter 13, "Formatting and Printing," shows how to arrange your information on the screen and prepare for printing.
- Chapter 14, "Charting a Spreadsheet Document," describes the Spreadsheet's charting capability.
- Chapter 15, "Spreadsheet Functions," describes the Spreadsheet's built-in functions.
- Chapter 16, "Spreadsheet Command Reference," describes all the Spreadsheet commands.

11 Entering Information

In this chapter, you'll learn how to:

- Recognize the parts of a Spreadsheet document, and design your own documents.
- Select parts of a Spreadsheet document.
- Enter and correct information.
- Use labels and values.
- Build a formula using operators, references, and functions.
- Avoid circular references.

An Overview

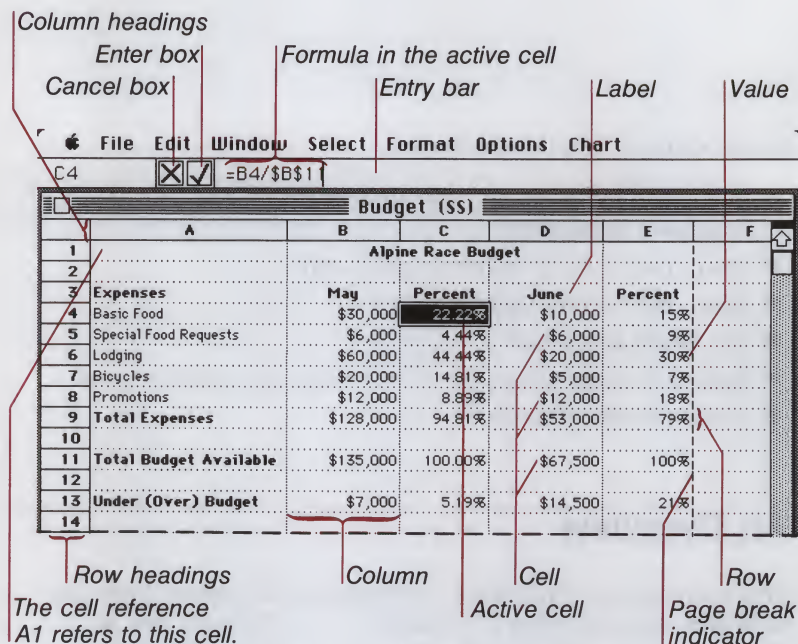
This section shows you what a Spreadsheet document looks like in Works, explains what a spreadsheet is, and shows how to design one for maximum effectiveness. The Spreadsheet helps you analyze numbers that you arrange in rows and columns, such as budgets or financial statements. Change the numbers to see what happens — the Spreadsheet makes the calculations. You can also chart your numbers with the Spreadsheet. Change a number in a document — the chart instantly reflects it.

An overview

Looking at a Spreadsheet window

Looking at a Spreadsheet Window

A Spreadsheet window looks like this:



Parts of a Spreadsheet document

A Spreadsheet document is made up of columns and rows. Each column has a lettered heading (labeled A to Z, then AA, AB, and so on to IV), and each row has a numbered heading (1 to 9,999). Columns and rows intersect to form cells. You can locate a cell or refer to it with a cell reference — its column heading and row heading. For example, A1 is the cell reference for the cell in the upper-left corner of a Spreadsheet document.

You tell Works where you want to enter information by selecting cells. As you type, the information appears in the entry bar. You enter the information into the active cell by clicking the enter box or pressing the Enter key. The number of cells you can fill is dependent upon the amount of memory available to you.

You put numbers, formulas, and labels into cells to create a Spreadsheet document. When you change numbers, you can see how the changes affect the outcome of Spreadsheet calculations.

You set up a calculation by entering a formula. $2 + 2$ is a simple formula. $A1 + A2$ is also a formula. Using this formula, Works looks for numbers in cells A1 and A2, and adds them.

Labels make your Spreadsheet documents easier to understand. Labels are text, such as Total Expenses, Percent, or 1986 Projections, that explain your numbers and formulas.

Designing a Spreadsheet Document

You may not realize it, but you've probably prepared something similar to a Spreadsheet document already. Maybe it was several columns of figures you jotted down for a promotional campaign, or a departmental budget you wrote on filler paper. But chances are that you've done something like this before.

These steps will help you clarify your thoughts:

- Choose a subject. For example, if your major purpose is to set up an expense report document, don't get sidetracked by putting a travel budget in the same Spreadsheet document.
- Choose the components. Write down all the types of information you need for your calculations. When you type them into a column in a Spreadsheet document, you will be setting up your labels.
- Decide on a structure. Map out what goes where. A good structure not only lends itself to easy calculation by Works, it also makes it easy to find the information you need after the calculations are complete.
- Plan the calculations. Determine equations that produce the results you want. These equations will become your Spreadsheet formulas.
- Decide on the numbers. When your labels and formulas are entered in your Spreadsheet document, you will need only the numbers to find your answers.

Selecting Parts of a Spreadsheet Document

Before you can enter information into a Spreadsheet document, you tell Works where to put the information by selecting a cell or a range of cells. The information you type goes into the active cell in the selection. The cell indicator shows you which cell is the active cell. In a range of selected cells, only the cell outlined with a solid white line is active.

Designing a Spreadsheet document

Content of the active cell

Cell indicator

Active cell

File

Edit

Window

Select

Format

Options

Chart

B4

30000


Budget (\$\$)						
	A	B	C	D	E	F
1	Alpine Race Budget					
2						
3	Expenses	May	Percent	June	Percent	
4	Basic Food	\$30,000	22.22%	\$10,000	15%	
5	Special Food Requests	\$6,000	4.44%	\$6,000	9%	
6	Lodging	\$60,000	44.44%	\$20,000	30%	
7	Bicycles	\$20,000	14.81%	\$5,000	7%	
8	Promotions	\$12,000	8.89%	\$12,000	18%	
9	Total Expenses	\$128,000	94.81%	\$53,000	79%	
10						
11	Total Budget Available	\$135,000	100.00%	\$67,500	100%	
12						
13	Under (Over) Budget	\$7,000	5.19%	\$14,500	21%	
14						

You can select cells by clicking or dragging with the mouse or by choosing commands from the Select menu. You can also select a cell by using certain keys on the keyboard. For more information, see the next section, "Entering Information into a Spreadsheet Document."

To select a single cell

To select a single cell, click the cell.

Click a cell to select it.

 File Edit Window Select Format Options Chart

B430000

Budget (\$\$)						
	A	B	C	D	E	F
1	Alpine Race Budget					
2						
3	Expenses	May	Percent	June	Percent	
4	Basic Food	\$30,000	22.22%	\$10,000	15%	
5	Special Food Requests	\$6,000	4.44%	\$6,000	9%	
6	Lodging	\$60,000	44.44%	\$20,000	30%	
7	Bicycles	\$20,000	14.81%	\$5,000	7%	
8	Promotions	\$12,000	8.89%	\$12,000	18%	
9	Total Expenses	\$128,000	94.81%	\$53,000	79%	
10						
11	Total Budget Available	\$135,000	100.00%	\$67,500	100%	
12						
13	Under (Over) Budget	\$7,000	5.19%	\$14,500	21%	
14						

The following table describes how to select various ranges of cells.

To select this range	Do this
A block of cells	Drag from the cell in one corner of the block to the cell in the opposite corner.
One row or column	Click the row or column heading.
Many rows or columns	Drag from the first row or column heading to the last heading.
All cells through the last cell	Choose All Cells from the Select menu.

When selecting a range of cells, if you drag past the last row or column on the screen, Works scrolls the window and adds to the selection. You can also use the Shift key to extend a selection beyond one screen:

- 1 Select the cell that marks the beginning of the range.
- 2 Scroll the document to the end of the range you want to select.
- 3 Hold down the Shift key while you select the cell that marks the end of the range.

Works selects all the cells between and including the two selections.

Works considers the last cell in your Spreadsheet document to be the cell at the intersection of the last row and column containing a value or formula. To select the last cell, choose Last Cell from the Select menu.

To select a range of cells

To extend a selection

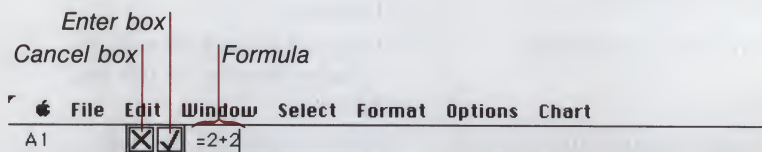
To select the last cell

Entering Information into a Spreadsheet Document

You can enter either constant values or formulas into the cells of a Spreadsheet document. Constant values can be text (labels) or numbers.

To enter a constant value, you select a cell and type the value. To enter a formula, you select a cell, type an equal sign (=), and then type the formula.

As you type the information you want to put in the active cell, it appears in the entry bar. That way, you can be sure that your entry is correct before you use it for a calculation or a label. It won't appear in the active cell until you enter it. You can type up to 238 characters in the entry bar.



To enter what you type

When you enter a constant value or a formula, Works stores it in the active cell and displays the formatted value in the cell.

There are several ways to enter what you type. You can click the enter box, or use the keyboard as described below:

To enter what you type and make the active cell

Press these keys

The cell on the right	Tab
The cell on the left	Shift-Tab
The cell below	Return
The cell above	Shift-Return
The same cell	Enter

You can also use these keys to move around in the document when you are not entering information.

To enter a constant value, and select any other cell at the same time, just click the other cell.

To move through a selection

If you select a range of cells, you can press the Tab or Return key to move the active cell within the range without changing the selection. You can quickly enter information into many cells by selecting the range, and typing, then pressing the Tab key or Return key, depending on which direction you want to move.

Making Corrections to an Entry

If you make a mistake while you're typing information in the entry bar, you can correct it.

To cancel your typing in the entry bar:

- Click the cancel box to the left of the entry bar.

Works cancels your typing and restores the original entry. If the original entry was blank, the entry bar will also be blank.

To edit an entry you can use the usual Macintosh editing techniques: Use the Cut, Copy, and Paste commands, or the Backspace key, or select what you want to change and type to replace it.

Entering a Label

Labels let you write explanatory information in a Spreadsheet document. Labels make the numbers and formulas easier to understand. You can label the contents of a column or row, or include notes to explain how you perform a certain calculation. Labels help other people understand your Spreadsheet document, and also help you when you return to a document that you haven't used in a long time.

You can do all sorts of creative things with labels: a line of hyphens can separate values in a column from their total; a number followed by a letter can specify a quarter of the year; a number can label a year. The following illustration gives some examples of how you can use labels.

Labels can be made up of...

...letters

...numbers

...or letters and numbers.

The screenshot shows a Macintosh spreadsheet application window titled "Untitled (SS)". The menu bar includes Apple logo, File, Edit, Window, Select, Format, Options, and Chart. The spreadsheet grid has columns labeled A through F and rows numbered 1 through 12. Red lines connect the text "Labels can be made up of..." to specific cells in the grid: "...letters" points to cell A1, "...numbers" points to cell B1, and "...or letters and numbers." points to cell C1.

	A	B	C	D	E	F
1	January	February	March	April	May	June
2						
3						
4	1982	1983	1984	1985	1986	1987
5						
6						
7	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter		
8						
9						
10						
11						
12						

You can type up to 238 characters in a label.

To cancel your typing in the entry bar

To edit an entry

To enter a label

To enter a label:

- 1 Select a cell.
- 2 Type the label.
- 3 Click the enter box or press the Enter key.

To fit labels into cells

If a label doesn't fit in a cell, Works automatically runs the label into any blank cells that follow, cutting off the label at the first non-blank cell, if necessary. If you don't want the label to overflow into an adjacent blank cell, select the cell and press the spacebar. The cell now contains a character, even though you can't see it, so the label will not run into that cell. Alternatively, you can widen the column to hold the label. For more information, see "Changing Column Width" in Chapter 13. The entry bar shows the full entry, regardless of the width of the column.

To begin a label with a number or symbol

Whenever you start an entry with a letter, Works stores the entry as a label. You can, however, start labels with numbers or math symbols, if you tell Works that you're typing a label rather than a value or formula.

You might need to begin a label with a number. For example, you might abbreviate thousands by typing *1000s*, or you might want to use a label such as *1986 Budget*.

To tell Works that you want to begin a label with a number or a symbol:

- 1 Select a cell.
- 2 Type a quotation mark (").
- 3 Type the label.
- 4 Click the enter box or press the Enter key.

Works enters the label in the active cell.

The quotation mark is a signal to Works that you're typing a label. It appears in the entry bar, but not in the cell.

When Works encounters a label while performing a calculation, it treats the label as a zero.

Entering a Number

To enter an integer or decimal number:

- 1 Select a cell.
- 2 Type a number.
Include a decimal point, if necessary. For a negative number, begin with a minus sign. Do not type commas or dollar signs.
- 3 Click the enter box or press the Enter key.

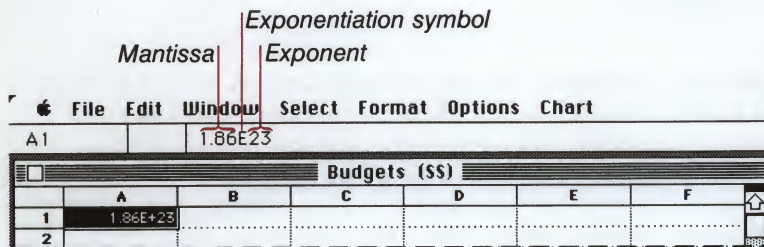
Works enters the number and displays it in the active cell.

If the number you enter cannot be accurately represented, given the width of the cell, Works fills the cell with # symbols. When you widen the cell, you see the actual value.

For very large and very small numbers, you can use scientific notation. Works accepts exponents to ± 99 . If you enter an exponent outside this range, Works displays *Error* in the cell.

To type a number in scientific notation, type an integer or decimal number, followed by an E and an integer that represents an exponent of 10.

When you enter a number in scientific notation, it looks like this:



If the result of a calculation is a number with an exponent outside the acceptable range, Works displays *Exponent* in the cell.

The format of a cell is separate from the cell's numeric value. A cell's format determines how the value is displayed. For more information, see "Changing Number Formats" in Chapter 13.

In a new Spreadsheet document, Works displays numbers as precisely as possible within the width of each cell. However, Works stores number values up to 18 places long, regardless of how they are displayed.

To enter a number

To type a number in scientific notation

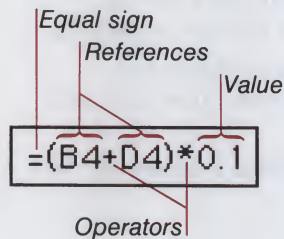
About numbers and formats

Building a Formula

Formulas make the Spreadsheet a useful tool. Without them you'd just have rows and columns of numbers. Formulas tell Works what to do with the numbers.

A formula makes up the content of a cell. When you select a cell, Works displays its content in the entry bar. In the cell itself, Works displays its formatted value. When the selected cell contains a constant value (either text or numbers), the display in the entry bar and in the cell may be the same. When the selected cell contains a formula, Works calculates it and displays the resulting value in the appropriate format in the cell. You can always examine the content of a cell by selecting the cell and looking in the entry bar.

Here's an example of what a formula might look like:



What is a formula?

A formula calculates a new value from existing values. A formula can consist of values, cell references, operators, and functions.

A formula can be as simple as `=B1+B2`, which adds the values in cells B1 and B2. Or, a formula can be complex:

`=Pi()/2-ATan(B1/Sqrt(1-B1^2))`

To enter a formula

Every formula begins with an equal sign. The equal sign tells Works that what follows is a formula, and so needs to be calculated.

You can set up much of a formula by pointing and clicking with the mouse. You can point to cells, drag across blocks of cells, and paste functions without typing.

To enter a formula:

- 1 Select a cell.
- 2 Type an equal sign (=).
- 3 Type the formula in the entry bar.
- 4 Click the enter box or press the Enter key.

Works enters the formula in the active cell, and displays the resulting value. The formula still shows up in the entry bar, so that you can see both the formula and the result simultaneously.

You can set up a simple total of a group of cells by pointing and clicking. The formula for a total looks like this:

To get a total

File Edit Window Select Format Options Chart

B9 ☒ ☒ =B4+B5+B6+B7+B8

Budget (\$\$)						
	A	B	C	D	E	F
1	Alpine Race Budget					
2						
3	Expenses	May	Percent	June	Percent	
4	Basic Food	\$30,000	22.22%	\$10,000	15%	
5	Special Food Requests	\$6,000	4.44%	\$6,000	9%	
6	Lodging	\$60,000	44.44%	\$20,000	30%	
7	Bicycles	\$20,000	14.81%	\$5,000	7%	
8	Promotions	\$12,000	8.89%	\$12,000	18%	
9	Total Expenses	\$128,000	94.81%	\$53,000	79%	
10						
11	Total Budget Available	\$135,000	100.00%	\$67,500	100%	
12						
13	Under (Over) Budget	\$7,000	5.19%	\$14,500	21%	
14						

When you click a cell to put a reference in the entry bar, Works outlines the cell.

The formula will be entered in the active cell.

To enter this formula:

- 1 Select a cell.
- 2 Type an equal sign (=).
- 3 Click each cell that you want to add. (Notice that you cannot use a range of cells in this particular formula, so do not drag across the cells.)

Works inserts addition operators (+) between the cells you click.

- 4 Click the enter box or press the Enter key.

Works enters the formula in the active cell, calculates it, and displays the resulting value.

You can also sum a range of numbers with the Sum function. For more information, see "Sum" in Chapter 15.

References

In Works, columns are labeled A through IV, beginning with columns A through Z, and then AA, AB, AC, and so on, to IV. Rows are labeled 1 through 9,999. The cell in column A, row 1, is referred to as A1. The number of cells you can fill is dependent upon the amount of memory available to you.

References make formulas flexible. You can use the same value in many formulas by entering the value in a cell and referring to that cell in the formulas. Then, if you change the value of the cell, Works recalculates the formulas using the new value.

When you build a formula, you can refer to cells using relative references or absolute references.

Relative references

Relative References

A relative reference gives general directions to Works, rather than a specific location. It's like saying, "Go up two blocks and over one." If you copy a relative reference to another cell, the reference changes relative to its new position. For example, if a relative reference in a formula points two rows up and one column to the right, and you copy the formula to another location, it still points two rows up and one column to the right, but it points to a different cell than it did originally.

	A	B	C
1			
2			
3	Original		
4		Copy	

Absolute References

An absolute reference is like a mailing address: 9522 Almont Street. No matter where you copy the reference to, it still points to the same cell. For example, an absolute reference to cell B1 always points to cell B1, even if the formula containing the reference is copied to another location in the Spreadsheet document. Works uses dollar signs to indicate that a reference is absolute. \$B\$1 is an absolute reference to cell B1.

	A	B	C
1			
2			
3	Original		
4			Copy

The difference between relative and absolute references is important only when you cut or copy a formula from one cell and paste it into another or when you use the Fill Right or Fill Down command. For information on copying references, see "Copying Cells" in Chapter 12.

You can enter a cell reference in a formula either by clicking the mouse or by typing. When you use the mouse, Works puts the reference into the entry bar for you.

To enter a reference:

- 1 Select a cell, then start a formula by typing an equal sign (=).
- 2 Click the cell that you want to refer to, or type the cell reference.

You can refer to as many cells as the formula needs. If you do not type an operator in the formula before you select each cell after the first one, Works supplies the addition operator (+). For example, if you type an equal sign, then click two cells, Works adds the contents of the two cells.

You can also refer to a range (or block) of cells with one reference. The reference includes the beginning reference, a colon standing for "to," and the ending reference. For example, the range reference A2:B5 refers to all the cells from A2 to B5, inclusive. You can use range references only in functions; for example, Sum(C1:E10).

Absolute references

To enter a reference in a formula

To enter a range reference in a formula

To enter a range reference in a formula:

- 1 Select a cell, then start a formula by typing an equal sign.
- 2 Drag across a block of cells, or type a reference for a range of cells.

If you drag with the mouse, an outline shows you the range of cells you're referring to. If you type, remember to include the colon. You can use a combination of clicking and typing.

Drag down this range of cells...

...to enter this reference in the formula.

Cell into which the formula will be entered

First cell in the range

Last cell in the range

Budget (\$\$)					
	A	B	C	D	E
1		Alpine Race Budget			
2					
3	Expenses	May	Percent	June	Percent
4	Basic Food	\$30,000	22.22%	\$10,000	15%
5	Special Food Requests	\$6,000	4.44%	\$6,000	9%
6	Lodging	\$60,000	44.44%	\$20,000	30%
7	Bicycles	\$20,000	14.81%	\$5,000	7%
8	Promotions	\$12,000	8.89%	\$12,000	18%
9	Total Expenses		0.00%	\$53,000	79%
10					
11	Total Budget Available	\$135,000	100.00%	\$67,500	100%
12					
13	Under (Over) Budget	\$135,000	100.00%	\$14,500	21%
14					
15					
16					
17					

Changing Reference Styles

When you click or drag to enter a reference in a formula, the reference will be relative. You can change the style of a reference by using the Absolute Cell Ref command from the Edit menu. This command takes effect on the cell reference immediately preceding the insertion point or the selected reference in the entry bar.

To make an absolute cell reference from a relative one:

- 1 Select the cell containing the formula that includes the relative reference you want to change.

To make a reference absolute

- 2 In the entry bar, position the insertion point immediately to the right of the relative reference, or select the reference.

This is the reference you want to change.

File Edit Window **Select** Format Options Chart

C4 ☒ ☒ =B4/B11|

Budget (\$\$)					
	A	B	C	D	E
1	Alpine Race Budget				
2					
3	Expenses	May	Percent	June	Percent
4	Basic Food	\$30,000	22.22%	\$10,000	15%
5	Special Food Requests	\$6,000	4.44%	\$6,000	9%
6	Lodging	\$60,000	44.44%	\$20,000	30%
7	Bicycles	\$20,000	14.81%	\$5,000	7%
8	Promotions	\$12,000	8.89%	\$12,000	18%
9	Total Expenses	\$128,000	94.81%	\$53,000	79%
10					
11	Total Budget Available	\$135,000	100.00%	\$67,500	100%
12					
13	Under (Over) Budget	\$7,000	5.19%	\$14,500	21%
14					

- 3 Choose Absolute Cell Ref from the Edit menu.

Works inserts dollar signs before the column letter and row number, indicating that the reference is now absolute.

Works adds dollar signs to show that the reference is now absolute.

File Edit Window **Select** Format Options Chart

C4 ☒ ☒ =B4/\$B\$11|

Budget (\$\$)					
	A	B	C	D	E
1	Alpine Race Budget				
2					
3	Expenses	May	Percent	June	Percent
4	Basic Food	\$30,000	22.22%	\$10,000	15%
5	Special Food Requests	\$6,000	4.44%	\$6,000	9%
6	Lodging	\$60,000	44.44%	\$20,000	30%
7	Bicycles	\$20,000	14.81%	\$5,000	7%
8	Promotions	\$12,000	8.89%	\$12,000	18%
9	Total Expenses	\$128,000	94.81%	\$53,000	79%
10					
11	Total Budget Available	\$135,000	100.00%	\$67,500	100%
12					
13	Under (Over) Budget	\$7,000	5.19%	\$14,500	21%
14					

You can also create absolute references by typing dollar signs before the column letter and row number of a relative reference.

To make a reference relative

To make a relative reference from an absolute one:

- 1 Select the cell containing the formula that includes the absolute reference you want to change.
- 2 In the entry bar, position the insertion point immediately to the right of the absolute reference, or select the reference.
- 3 Choose Absolute Cell Ref from the Edit menu.

Works removes the dollar signs, indicating that the reference is now relative.

You can also remove the dollar signs by using the Backspace key.

Mixing References

If you want to refer to cells in such a way that only the column or the row reference is absolute (or relative), you can use mixed references. For example, in the reference \$B3, only the column reference is absolute. In the reference B\$3, only the row reference is absolute. It's like giving a street but no address—the second house down on Almont Street. The house depends on where you are, but the street remains the same.

With these mixed references, the formula always uses cells in rows 4 and 5 (the absolute references), but may not always use cells in column B (the relative reference), if the formula is copied elsewhere.

Budget (SS)					
	A	B	C	D	E
1	Alpine Race Budget				
2					
3	Expenses	May	Percent	June	Percent
4	Basic Food	\$30,000	22.22%	\$10,000	15%
5	Special Food Requests	\$6,000	4.44%	\$6,000	9%
6	Food Subtotal	\$36,000			
7	Lodging	\$60,000	44.44%	\$20,000	30%
8	Bicycles	\$20,000	14.81%	\$5,000	7%
9	Promotions	\$12,000	8.89%	\$12,000	18%
10	Total Expenses	\$164,000	121.48%	\$55,000	79%
11					
12	Total Budget Available	\$135,000	100.00%	\$67,500	100%
13					
14	Under (Over) Budget	(\$29,000)	-21.48%	\$14,500	21%
15					

You can enter a mixed reference by typing it into the entry bar. Just put a dollar sign before the reference you want to be absolute.

You can reverse a mixed reference either by typing and using the Backspace key or by using the Absolute Cell Ref command from the Edit menu.

To enter or reverse a mixed reference

Operators

An operator is an instruction, such as + or -, that tells Works to calculate a new value from existing values. For example, in the formula = 3 + 6, the addition sign (+) is the operator that instructs Works to add the operands 3 and 6 to produce the new value 9.

Works uses two kinds of operators: arithmetic and comparison.

Arithmetic Operators

The arithmetic operators represent standard calculator functions. These include:

+	Addition
-	Subtraction
-	Negation (if used with one operand only)
*	Multiplication
/	Division
^	Exponentiation

To use an arithmetic operator:

- 1 Select a cell.
- 2 Type an equal sign to start a formula.
- 3 Type the first number or click a cell reference.
- 4 Type an arithmetic operator.
- 5 Type the second number or click a cell reference.
- 6 Type as many additional numbers and operators as you need.
- 7 Click the enter box or press the Enter key.

Works enters the formula in the active cell, calculates it, and displays the resulting value.

Remember that if you don't type an operator after an operand (number or cell reference) in a formula, Works automatically inserts an addition sign (+) before the next cell reference.

To use an arithmetic operator

Comparison Operators

A comparison operator compares two values and produces the value 1 (TRUE) or 0 (FALSE). Works has six comparison operators:

=	Equals
<	Less than
<=	Less than or equal to
>	Greater than
>=	Greater than or equal to
<>	Not equal

For example, $3 < 2$ produces the value 0 (FALSE), while $2 < 3$ produces the value 1 (TRUE). If cell B17 contains 5 and cell B52 contains 13, then $B17 > B52$ produces 0 (FALSE) and $B17 < B52$ produces 1 (TRUE).

Order of Operators

If you combine several operators in a single formula, Works performs the operations in this order:

^	Exponentiation
-	Negation
* and /	Multiplication and division
+ and -	Addition and subtraction
= < <= > >= <>	Comparison operators

If you want to change this order, use parentheses. Works first calculates the expressions in parentheses, and then uses those results to calculate the rest of the formula. For example:

Without parentheses	With parentheses
$4 * 3 + 2 = 14$	$4 * (3 + 2) = 20$
$- 3^2 = -9$	$(- 3)^2 = 9$

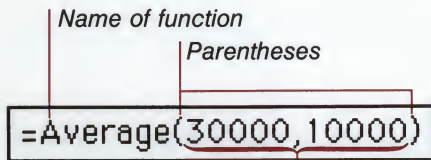
Functions

A function is a built-in calculation. A function is similar to an arithmetic operator, such as + or -, in that it produces a new value from other values, called arguments.

Works has 54 built-in functions that you can paste or type into formulas. For a detailed description of each function, see Chapter 15, "Spreadsheet Functions."

Syntax of Functions

Each function consists of the function name, a set of parentheses, and arguments (the values the function uses to produce a new value) separated by commas.



Arguments separated by a comma

The parentheses are very important. They tell Works where the arguments begin and end. When you paste a function using the Paste Function command from the Edit menu, Works provides the parentheses and positions the insertion point between them. All you do is type the arguments and the commas.

If you type the function instead of pasting it, remember to type the parentheses. Do not leave any space before the left parenthesis. Be sure to finish with a right parenthesis. Otherwise, Works displays an alert box.

In Works, an argument to a function can be a number, a reference, a range reference, another function, or an expression such as `C3/2`. You can click cells to insert references into the arguments of a function.

Many functions have more than one argument. For example, `Average(F1,F2,F3,F4,F5)` calculates the average value of cells F1 through F5. It uses a series of references to find an average. `Pmt(0.0167,36,12000)` calculates the amount you'd have to pay back on a loan of \$12,000 over a period of 36 months at 1.67% interest per month.

You can include functions in a formula either by typing them or pasting them.

To paste a function into a formula in the entry bar:

- 1 Select the cell to hold the formula.
- 2 Position the insertion point where you want the function to go in the formula.
- 3 Choose Paste Function from the Edit menu.

Parts of a function

Arguments to functions

To enter a function into a formula

- 4 Select the function you want from the list.
- 5 Click the OK button.

Works pastes the function into your formula, including the parentheses. The insertion point is inside the parentheses, ready to accept arguments to the function.

The insertion point shows where the arguments go.

`=Sum()`

- 6 Type any values or click any cell references required by the function.
- 7 Include any additional operators and operands that you need in your formula.

`=Sum(B4:B8)`

- 8 Click the enter box or press the Enter key.

Works enters the formula in the active cell, calculates it, and displays the resulting value.

When you enter the formula, Works displays the formula in the entry bar...

...and displays the result of the calculation in the selected cell.

Budget (SS)					
	A	B	C	D	E
1	Alpine Race Budget				
2					
3	Expenses	May	Percent	June	Percent
4	Basic Food	\$30,000	22.22%	\$10,000	15%
5	Special Food Requests	\$6,000	4.44%	\$6,000	9%
6	Lodging	\$60,000	44.44%	\$20,000	30%
7	Bicycles	\$20,000	14.81%	\$5,000	7%
8	Promotions	\$12,000	8.89%	\$12,000	18%
9	Total Expenses	\$128,000	94.81%	\$53,000	79%
10					
11	Total Budget Available	\$135,000	100.00%	\$67,500	100%
12					
13	Under (Over) Budget	\$7,000	5.19%	\$14,500	21%
14					

If you choose to type a function rather than paste it, be sure to type an equal sign to begin the formula, and include parentheses before and after the arguments.

Avoiding Circular References

To help Works perform as efficiently as possible, avoid circular references in your formulas. A circular reference is a reference that has no ending point. The cells involved in a circular reference cannot be calculated. It is like a child asking his father if he can go out and play. His father says it's okay if his mother says it's okay. His mother says it's okay if his father says it's okay. So the child doesn't know what to do. When Works encounters a circular reference, it displays an alert box.

A circular reference in a Spreadsheet document is a reference that refers to a cell which in turn refers back to the original cell. More specifically, a circular reference occurs when, in order to calculate a formula in a particular cell, Works needs the value of the same cell that contains the formula. An example of such a reference is the formula `=Sum(A1:A6)` when entered in cell A1.

A more common example of a circular reference involves a chain of cells and references. For example, a formula in cell E1 may refer to cell E2, which contains a reference to cell E3, which contains a reference to cell E4, which contains a reference back to cell E1. In Works, a circular reference like this cannot be resolved.

Avoiding circular references

THE UNIVERSITY OF CHICAGO
DEPARTMENT OF CHEMISTRY
CHICAGO, ILLINOIS 60637

MEMORANDUM
TO: [illegible]
FROM: [illegible]

EXPERIMENTAL PROCEDURE

The following procedure was used for the synthesis of [illegible] compound. A solution of [illegible] (1.0 g, 5.0 mmol) in [illegible] (10 mL) was stirred at room temperature for 24 hours. The mixture was then poured into water and extracted with [illegible]. The organic layer was dried over [illegible] and concentrated under reduced pressure. The residue was purified by [illegible] chromatography using [illegible] as the eluent. The pure compound was obtained as a [illegible] solid, mp [illegible] °C. The mother liquor was evaporated and the residue was recrystallized from [illegible] to give an additional 0.2 g of pure compound. Total yield was 1.2 g (60%).

ANAL. Calcd for [illegible]: C, [illegible]%; H, [illegible]%; N, [illegible]%. Found: C, [illegible]%; H, [illegible]%; N, [illegible]%. IR (KBr): [illegible] cm⁻¹. ¹H NMR (CDCl₃): [illegible] ppm. ¹³C NMR (CDCl₃): [illegible] ppm.

12 Working with the Spreadsheet

After you've set up a Spreadsheet document, you're ready to start playing with the numbers to see the results of various scenarios. This chapter shows you ways you can work with a completed Spreadsheet document.

This chapter shows you how to:

- Play What-If—change the content of a cell to see the effect that change has on the rest of your information.
- Choose when to recalculate, rather than having Works do it automatically.
- Display formulas to help analyze the design of a Spreadsheet document.
- Divide the Spreadsheet window into panes, so that you can view different parts of the Spreadsheet document at the same time.
- Find a cell anywhere in a Spreadsheet document.
- Work with blocks of cells, copying, pasting, turning rows into columns and back, filling empty cells, and moving.
- Sort a Spreadsheet document by rows.
- Insert blank rows and columns.

These tasks help you analyze the information in your Spreadsheet document. If you want to polish the appearance of your document, or prepare it for printing, see Chapter 13, "Formatting and Printing."

Changing the Content of a Cell

One of the Spreadsheet's most important assets is its ability to recalculate whenever you make a change.

Each time you make a change, you play What-If. What if the rate on your building loan goes up by 2%? What if it goes up 5%?

To change the content of a cell

As long as you've saved your original Spreadsheet document on a disk, you're working with a copy. None of the changes you try are permanent unless you want them to be. On the other hand, if you find several alternative scenarios that you'd like to keep, you can print each one, or save each with a different name.

You can change the entire content of a cell by selecting the cell and typing the new information. The new information replaces the old. Or, you can change part of a cell's formula or constant value in the entry bar using standard Macintosh editing techniques. Click in the entry bar and type the information you want to add, or use the Cut, Copy, and Paste commands from the Edit menu to replace information.

When you click in the entry bar, Works activates it and displays a cancel box, an enter box, and an insertion point.

When you are done making changes, click the enter box (or press the Enter key) to enter the new information into the cell. If you decide not to keep your changes, click the cancel box. Works restores the previous contents of the entry bar.

The cancel and enter boxes are visible when the entry bar is active.

When the entry bar is active, you can edit the cell's value or formula.

Apple File Edit Window Select Format Options Chart

B4 ☐ ☒ 30000

Budget (SS)						
	A	B	C	D	E	F
1	Alpine Race Budget					
2						
3	Expenses	May	Percent	June	Percent	
4	Basic Food	\$30,000	22%	\$10,000	15%	
5	Special Food Requests	\$6,000	4%	\$6,000	9%	
6	Lodging	\$60,000	44%	\$20,000	30%	
7	Bicycles	\$20,000	15%	\$5,000	7%	
8	Promotions	\$12,000	9%	\$12,000	18%	
9	Total Expenses	\$128,000	95%	\$53,000	79%	
10						
11	Total Budget Available	\$135,000	100%	\$67,500	100%	
12						
13	Under (Over) Budget	\$7,000	5%	\$14,500	21%	
14						

Click the enter box or press the Enter key to enter the edited value or formula in the active cell.

Controlling Calculation

The Works Spreadsheet normally calculates automatically whenever you enter or change a value. Each recalculation takes some time. But with Works, you don't have to wait. While calculations are being performed, you can continue to enter values or perform other Spreadsheet functions.

While Works is recalculating the Spreadsheet document, the icon representing the pointer changes slightly. If the pointer is an arrow, Works inverts its colors to white on black; if the pointer is an I-beam, Works adds a circle to the stem of the I. When the pointer returns to its normal appearance, recalculation is done.

You should not use numbers displayed on the screen until calculations are complete, since the numbers may change as a result of the calculations.

If you have many numbers to enter and don't want calculations to be performed until you are finished, you can switch to manual calculation. With manual calculation, you tell Works when you are ready to recalculate.

To set manual calculation:

- ☐ Choose Manual Calculation from the Options menu.

Then, when you've entered all your information and are ready to recalculate manually:

- ☐ Choose Calculate Now from the Options menu.

If you no longer have many changes to make, you can switch back to automatic calculation.

- ☐ Choose Automatic Calculation from the Options menu.

When you're examining the effects of changes to a single cell, automatic calculation saves you the trouble of repeatedly telling Works to recalculate.

**To set manual
calculation**

**To return to
automatic calculation**

Showing Formulas or Values

The Spreadsheet normally displays the values that result from calculations. The entry bar displays the content of the active cell. But sometimes you may want to see all the formulas in a Spreadsheet document, so you can figure out the logic behind its design.

To show formulas

To have Works display all the formulas and unformatted values:

- ☒ Choose Show Formulas from the Options menu.

Budget (\$\$)						
	A	B	C	D	E	F
1	Alpine Race Budget					
2						
3	Expenses	May	Percent	June	Percent	
4	Basic Food	30000	=B4/\$B\$11	10000	=D4/\$D\$11	
5	Special Food Requests	6000	=B5/\$B\$11	6000	=D5/\$D\$11	
6	Lodging	60000	=B6/\$B\$11	20000	=D6/\$D\$11	
7	Bicycles	20000	=B7/\$B\$11	5000	=D7/\$D\$11	
8	Promotions	12000	=B8/\$B\$11	12000	=D8/\$D\$11	
9	Total Expenses	=Sum(B4:B8)	=B9/\$B\$11	=Sum(D4:D8)	=D9/\$D\$11	
10						
11	Total Budget Available	135000	=B11/\$B\$1	67500	=D11/\$D\$1	
12						
13	Under (Over) Budget	=B11-B9	=B13/\$B\$1	=D11-D9	=D13/\$D\$1	
14						

To show values

For analyzing numbers, it's better to look at values than formulas.

To have Works display values:

- ☒ Choose Show Values from the Options menu.

Works now shows you the formatted values.

Budget (\$\$)					
	A	B	C	D	E
1	Alpine Race Budget				
2					
3	Expenses	May	Percent	June	Percent
4	Basic Food	\$30,000	22%	\$10,000	15%
5	Special Food Requests	\$6,000	4%	\$6,000	9%
6	Lodging	\$60,000	44%	\$20,000	30%
7	Bicycles	\$20,000	15%	\$5,000	7%
8	Promotions	\$12,000	9%	\$12,000	18%
9	Total Expenses	\$128,000	95%	\$53,000	79%
10					
11	Total Budget Available	\$135,000	100%	\$67,500	100%
12					
13	Under (Over) Budget	\$7,000	5%	\$14,500	21%
14					

Dividing the Spreadsheet Window into Panes

Often you'll want to see the results of a change in one cell on another cell far away. Scrolling back and forth from the cell with the change to the cell with the result could get tiresome. So Works provides split bars that divide the Spreadsheet window into panes. The panes scroll together along the direction of the split. The two panes on either side of the vertical split bar scroll together vertically. The two panes above and below the horizontal split bar scroll together horizontally. That means you can leave one pane stationary while you scroll the other pane until it shows the second cell. When you make a change, you'll see the effects of it instantly, even across an entire Spreadsheet document.

Dividing the window into panes also lets you freeze row and column labels while you scroll through numbers in another pane. If you have a very wide or very long Spreadsheet document, you won't have to guess what the numbers at the far end of the document refer to.

You can divide the window into both side-by-side and upper and lower panes.

To divide the window into two panes

- 1 Position the pointer on either the horizontal or vertical split bar.
The pointer turns into a two-way arrow.
- 2 Drag the split bar until it lines up with the right edge of the column or the bottom edge of the row at which you want to divide the Spreadsheet document.

When you release the mouse button, Works divides the window into two panes.

Drag both the horizontal and vertical split bars to divide the window into four panes.

Scroll bars

	A	C	D	E	F	G
1		New Race Budget				
2						
3	Expenses	Percent	June	Percent		
4						
5	Special Food Requests	4.44%	\$6,000	9%		
6	Lodging	44.44%	\$20,000	30%		
7	Bicycles	14.81%	\$5,000	7%		
8	Promotions	8.89%	\$12,000	18%		
9	Total Expenses	94.81%	\$53,000	79%		
10						
11	Total Budget Available	100.00%	\$7,500	100%		
12						
13	Under (Over) Budget	5.19%	\$14,500	21%		
14						
15						
16						
17						
18						

Scroll bars

Now you have four sets of scroll bars. Each scroll bar controls the two panes that are in line with it. For example, the upper scroll bar controls the two upper panes, and the left scroll bar controls the two left panes. Otherwise, the scroll bars work normally.

To close a pane:

- Drag the split bar back to the far left or upper edge of the pane.

To close a pane

Finding a Cell

If you want to look at a cell that's just beyond the edge of the window, you can find it easily by scrolling. But a cell that's far away on a very large Spreadsheet document may be difficult to find.

If you specify the coordinates of a cell, Works will find it for you. If you know only what's in the cell, you can specify its value, and Works will try to find a cell that matches what you type.

Works can also find the last cell and the active cell in a Spreadsheet document.

Using Cell References or Cell Content

There are two commands from the Select menu that allow you to find a particular cell: Find Cell and Go To Cell. Use Find Cell to have Works select a particular cell, and use Go To Cell when you just want to see the value of a cell, but do not want to select it.

To find and select a cell

With the Find Cell command, you can find and select a cell by specifying its reference or value. If the value you're looking for is a label, you can specify a portion of the text, and Works will look for the cell containing it.

To find a cell containing the error value *Error* or N/A, type =Error() or =NA() in the Find Cell dialog box. When you type a formula (beginning with an equal sign) in the dialog box, Works calculates the formula and looks for a cell displaying the resulting value. For example, since =Error() gives the value *Error*, Works looks for a cell containing *Error*.

To find and select a cell:

- 1 Choose Find Cell from the Select menu.
- 2 Type the reference or the value of the cell you're looking for, or type a formula whose resulting value is in the cell.
- 3 Click the Find Next button.

If you type 60000 or B6 in the Find Cell dialog box, Works finds and selects this cell.

Budget (SS)					
	A	B	C	D	E
1		Alpine Race Budget			
2					
3	Expenses	May	Percent	June	Percent
4	Basic Food	\$30,000	22.22%	\$10,000	15%
5	Special Food Requests	\$6,000	4.44%	\$6,000	9%
6	Lodging	\$60,000	44.44%	\$20,000	30%
7	Bicycles	\$20,000	14.81%	\$5,000	7%
8	Promotions	\$12,000	8.89%	\$12,000	18%
9	Total Expenses	\$128,000	94.81%	\$55,000	79%
10					
11	Total Budget Available	\$135,000	100.00%	\$67,500	100%
12					
13	Under (Over) Budget	\$7,000	5.19%	\$14,500	21%
14					

If you type a reference, Works moves to the cell and selects it. If you type the cell value or formula, Works looks across each row for a cell whose value matches what you typed. If it finds a match, Works moves to and selects the cell. If Works can't find anything to match the text you typed, it displays an alert box.

With the Go To Cell command, you can find a particular cell by specifying its cell reference. Works finds the cell and makes it visible in the window. It does not select the cell.

The Go To Cell command is useful while you're typing a formula and want to see a particular cell. Because the cell is not selected, it will not appear in the entry bar as a reference. Go To Cell is also useful when you want to select a large range of cells.

To find a cell without selecting it:

- 1 Choose Go To Cell from the Select menu.
- 2 Type the reference of the cell you're looking for.
- 3 Click the OK button.

Works moves to the cell but does not select it.

To find a cell without selecting it

The cell you specify in the Go To Cell dialog box appears in the window, but is not selected.

Budget (\$\$)					
	A	B	C	D	E
1	Alpine Race Budget				
2					
3	Expenses	May	Percent	June	Percent
4	Basic Food	\$30,000	22.22%	\$10,000	15%
5	Special Food Requests	\$6,000	4.44%	\$6,000	9%
6	Lodging	\$60,000	44.44%	\$20,000	30%
7	Bicycles	\$20,000	14.81%	\$5,000	7%
8	Promotions	\$12,000	8.89%	\$12,000	18%
9	Total Expenses	\$128,000	94.81%	\$53,000	79%
10					
11	Total Budget Available	\$135,000	100.00%	\$67,500	100%
12					
13	Under (Over) Budget	\$7,000	5.19%	\$14,500	21%
14					

Finding the Last Cell or Active Cell

The Last Cell and Active Cell commands from the Select menu help you move quickly around a Spreadsheet document.

To find the last cell

Works considers the last cell in a Spreadsheet document to be the cell at the intersection of the last row and column that contain a value or formula.

To select the last cell of your existing Spreadsheet document:

- ☐ Choose Last Cell from the Select menu.

Works scrolls to the last cell, which marks the lower right boundary of your document, and selects it for you.

To find the active cell

If you have been scrolling all around the document looking at various cells, the Show Active Cell command takes you back to where you were last working.

To scroll to the currently selected cell:

- ☐ Choose Show Active Cell from the Select menu.

Works scrolls to the active cell.

Copying Cells

It doesn't take long to type the content of a cell. But why type the same thing over and over again? With Works, you don't have to. Using commands from the Edit menu, you can copy it. For example, if you have sales projections for four quarters, you can set up the formulas for the first quarter and then copy them for the rest.

What happens when you copy references?

When you copy and paste a formula that contains relative references, the references are adjusted to reflect their new locations. If you copy and paste a formula containing a relative reference that refers up two rows and over one column, the adjusted reference will refer up two and over one to whatever new cell holds that relative position. For example, if the formula in cell C7 is =C4 and you copy it to cell D7, Works changes the formula to =D4 so that it still refers to the cell "three up from the formula cell." When you paste relative references, the new references look different from the old ones, and refer to different cells. However, a copy of an absolute reference refers to exactly the same cell as the original reference.

Copying and Pasting Values and Formulas

When you copy, Works places a copy of the selected cells onto the Clipboard for you to paste somewhere else.

To copy and paste a selection:

- 1 Select the area you want to copy.

To copy and paste a selection

Budget (SS)					
	A	B	C	D	E
1	Alpine Race Budget				
2					
3	Expenses	May	Percent	June	Percent
4	Basic Food	\$30,000	22.22%	\$10,000	15%
5	Special Food Requests	\$6,000	4.44%	\$6,000	9%
6	Lodging	\$60,000	44.44%	\$20,000	30%
7	Bicycles	\$20,000	14.81%	\$5,000	7%
8	Promotions	\$12,000	8.89%	\$12,000	18%
9	Total Expenses	\$128,000	94.81%	\$53,000	79%
10					
11	Total Budget Available	\$135,000	100.00%	\$67,500	100%
12					
13	Under (Over) Budget	\$7,000	5.19%	\$14,500	21%
14					

Selection to be copied to the Clipboard

- 2 Choose Copy from the Edit menu.

Works puts the selection onto the Clipboard. It stays there until you replace it with another selection or turn off your Macintosh.

- 3 Click the upper-left cell of the area you want to paste into. Make sure that the cells you want to paste into are blank or can be replaced.

- 4 Choose Paste from the Edit menu.

Works pastes the full contents of the Clipboard back into the Spreadsheet document, adjusting relative references to reflect their new location.

Budget (\$\$)					
	A	B	C	D	E
1	Alpine Race Budget				
2					
3	Expenses	May	Percent	June	Percent
4	Basic Food	\$30,000	22.22%	\$30,000	22.22%
5	Special Food Requests	\$6,000	4.44%	\$6,000	4.44%
6	Lodging	\$60,000	44.44%	\$60,000	44.44%
7	Bicycles	\$20,000	14.81%	\$20,000	14.81%
8	Promotions	\$12,000	8.89%	\$12,000	8.89%
9	Total Expenses	\$128,000	94.81%	\$128,000	94.81%
10					
11	Total Budget Available	\$135,000	100.00%	\$135,000	100.00%
12					
13	Under (Over) Budget	\$7,000	5.19%	\$7,000	5.19%
14					

*Contents of the Clipboard
pasted into the new location*

Pasting Values Only

To paste values only

Sometimes you will want to paste just resulting values, without the formulas. The Paste with Options command lets you choose to paste just values from the Clipboard back into a Spreadsheet document.

For example, if you have an accounts receivable ledger in one Spreadsheet document and a general ledger in another, you could paste just the total of the accounts receivable (that is, values only) to the general ledger. You don't want to paste the formulas that produce the values, however, since those would produce different values in the general ledger.

To paste values only:

- 1 Select the area you want to copy, and choose Copy from the Edit menu.
- 2 Click the upper-left cell of the area you want to paste into. Make sure that the cells you want to paste into are blank or can be replaced.
- 3 Choose Paste with Options from the Edit menu.
- 4 Click the Values Only option.
- 5 Click the OK button.

Notice that if you click the Both Values and Formulas option, Works proceeds exactly the same as if you had chosen the normal Paste command.

Works transposes the rows into columns or vice versa, then adjusts relative references to reflect their new location.

Filling

To fill into adjacent cells

Filling lets you copy the content of a row or column into adjacent rows or columns. Within a selection, you fill cells to the right of the first column of the selection or below the first row of the selection. Filling fills in all cells within the selection, replacing their content if they are not blank, so you should be sure that any cells containing information can be replaced.

To fill into adjacent cells:

- 1 Drag across one column or row containing the data you want to copy and as many blank adjacent rows and columns as you want to fill.

Make sure the entire block is highlighted.

File Edit Window Select Format Options Chart

C4 10000

	A	B	C	D	E
1					
2					
3	Expenses	May	June	July	
4	Basic Food	\$30,000	\$10,000		
5	Special Food Requests	\$6,000	\$6,000		
6	Lodging	\$60,000	\$20,000		
7	Bicycles	\$20,000	\$5,000		
8	Promotions	\$12,000	\$12,000		
9	Total Expenses	\$128,000	\$53,000		
10					
11	Total Budget Available	\$135,000	\$67,500		
12					
13	Under (Over) Budget	\$7,000	\$14,500		
14					

The contents of these cells...

...will fill these cells.

- 2 Choose Fill Right or Fill Down from the Edit menu.

Works copies the contents of the original cells into the adjacent cells.

The contents of the original cells remain unchanged...

...when the new cells are filled with the Fill Right command.

Budgets (\$\$)				
	A	B	C	D
1	Alpine Race Budget			
2				
3	Expenses	May	June	July
4	Basic Food	\$30,000	\$10,000	\$10,000
5	Special Food Requests	\$6,000	\$6,000	\$6,000
6	Lodging	\$60,000	\$20,000	\$20,000
7	Bicycles	\$20,000	\$5,000	\$5,000
8	Promotions	\$12,000	\$12,000	\$12,000
9	Total Expenses	\$128,000	\$53,000	\$53,000
10				
11	Total Budget Available	\$135,000	\$67,500	
12				
13	Under (Over) Budget	\$7,000	\$14,500	
14				

If you have any relative references in copied formulas, Works adjusts them relative to their new positions. Absolute references stay the same.

Moving Cells

Suppose you developed a whole Spreadsheet document and then decided you wanted your totals at the top, instead of at the bottom. The Move command lets you select a block of cells and move it to a new location within that same Spreadsheet document.

When you move cells, all references in the cells in the new location refer to the same cells that they did before you moved them; the formulas still calculate from the same values. Works adjusts any other formulas on the Spreadsheet document that contain references to the moved cells, so that they refer to the new location of the moved cells.

To use the Move command, you must know the coordinates of the cell at the upper-left corner of the location you want to move to.

To move a block of cells:

- 1 Select the block that you want to move.

To move a block of cells

Works moves the selection from its old location and pastes it into the new one. All relative references in the moved cells refer to the same cells they referred to before the move.

If you don't know the exact coordinates of the location where you want to move the selection, there's another way to move cells. After you select the block you want to move, position the pointer on the cell at the upper-left corner of the destination block, but don't select it. Then hold down the Command and Option keys and click.

Sorting

You can change the order of rows in a selection by sorting. You might want to sort a payroll document in alphabetical order by last names, or you might want to sort a stockroom inventory by part number.

Works lets you sort in ascending and descending order.

If you have numbers and text in the same column, the numbers come first, whether you're sorting in ascending or descending order. Blank cells are always sorted last.

You can sort on up to three key columns. This allows you to have subgroups for subtotals. For example, you could sort a payroll document by department, supervisor, and last name, setting up subtotals for each category. That would let you analyze payroll expenses by department and supervisor.

In the example below, the selected cells are being sorted in ascending order on key column A.

If you type A in the Sort dialog box, Works sorts the entire selection based on the contents of column A.

File Edit Window Select Format Options Chart					
A4	Basic Food				
	Budget (\$\$)				
	A	B	C	D	E
1	Alpine Race Budget				
2					
3	Expenses	May	Percent	June	Percent
4	Basic Food	\$30,000	22%	\$10,000	15%
5	Special Food Requests	\$6,000	4%	\$6,000	9%
6	Lodging	\$60,000	44%	\$20,000	30%
7	Bicycles	\$20,000	15%	\$5,000	7%
8	Promotions	\$12,000	9%	\$12,000	18%
9	Total Expenses	\$128,000	95%	\$53,000	79%
10					
11	Total Budget Available	\$135,000	100%	\$67,500	100%
12					
13	Under (Over) Budget	\$7,000	5%	\$14,500	21%
14					

Apple File Edit Window Select Format Options Chart						
A4		Basic Food				
Budget (\$\$)						
	A	B	C	D	E	F
1	Alpine Race Budget					
2						
3	Expenses	May	Percent	June	Percent	
4	Basic Food	\$30,000	22%	\$10,000	15%	
5	Bicycles	\$20,000	15%	\$5,000	7%	
6	Lodging	\$60,000	44%	\$20,000	30%	
7	Promotions	\$12,000	9%	\$12,000	18%	
8	Special Food Requests	\$6,000	4%	\$6,000	9%	
9	Total Expenses	\$128,000	95%	\$53,000	79%	
10						
11	Total Budget Available	\$135,000	100%	\$67,500	100%	
12						
13	Under (Over) Budget	\$7,000	5%	\$14,500	21%	
14						

Sorting affects only selected cells. Works rearranges the selected cells in each row according to the order you specify for the key column. When you change the order, most cells will have different cell references. Works changes both absolute and relative references, inside and outside the selection, to reflect new cell locations.

To sort a Spreadsheet document

To sort a Spreadsheet document:

- 1 Select the cells you want to sort.
- 2 Choose Sort from the Edit menu.
- 3 Type the letter of the column heading on which you want to sort — the key column.
- 4 Click the order you want to sort in (ascending or descending).
- 5 If you have a second or third key column, move the insertion point into the appropriate box and type the letter.
- 6 Click the OK button or press the Return key.

Works reorders your selection.

Note You can only sort rows. If you try to sort columns based on key row headings, Works displays an alert box.

Inserting Rows or Columns

You can insert rows or columns in a Spreadsheet document whenever necessary. So if you have just finished a large document after hours of work and you discover that you need just one more row, Works can help you.

When you insert rows or columns, both relative and absolute references are adjusted accordingly. So if you have a cell referring to cell A1 and insert a row above row 1, the changed reference will be to cell A2, one row down.

To insert a row or column:

- 1 Click the row or column heading where you want to insert a new row or column.
- 2 Choose Insert from the Edit menu.

Works inserts the new row or column at the selection, moving the selected row beneath the insertion, or the selected column to the right of the insertion. All the rows or columns that follow the new one are renumbered. If you need to insert more than one row or column, you can repeat the procedure.

To insert a row or column

...the ... of ...

...the ... of ...

...the ... of ...

...the ... of ...

13 Formatting and Printing

The first two chapters of this part of the manual explained how to set up a Spreadsheet document and calculate with it. In this chapter, you'll learn how to change the way it looks — its format. This chapter also explains how to print a Spreadsheet document when you have the format adjusted to your liking.

Read this chapter to learn how to:

- Change the way numbers are displayed.
- Realign the content of cells.
- Emphasize cells with bold type or underlining.
- Display or remove the grid.
- Change column width.
- Protect cells from changes.
- Set page breaks for printing.
- Print a Spreadsheet document.

The value of a cell and how Works displays that value within the cell are different. The value of a cell is determined by its formula. How that value is displayed is determined by the format of the cell.

You can change the appearance of a Spreadsheet document in a variety of ways without affecting formulas or values in cells. When you change a cell's format, its value does not change. Works displays the cell's value in the new format.

Using commands from the Format menu, you can specify the format of a cell before or after you enter the content of the cell. When you want to enter data that all use the same format, you can format selected cells before you start typing. Then, when you enter the data into those cells, Works displays it in the format you chose. Or, you can enter your data first, then select the cells and choose a format.

About cell formats

Changing Number Formats

Unless you specify otherwise, Works displays numbers in General format (that is, as accurately as possible, given the cell width). For example, if you type 12345.6789, Works may display it in a variety of ways, depending on the width of the cell: 12345.6789, 12345.7, 12346, $1\text{E}+4$, and so on.

To change the format of numbers in cells

Numbers can be displayed in General format, as fixed decimals, dollars, percents, or in scientific notation. With all formats except General, you can set a fixed number of decimal places to display. One Spreadsheet document can contain many different cell formats. For information about the number formats you can use, see "The Format Menu" in Chapter 16.

To change the format of cells:

- 1 Select the cells you want to format.
- 2 Choose General, Fixed, Dollar, Percent, or Scientific from the Format menu.

Works adjusts the format of the selected cells accordingly.

Number Formats (\$\$)						
	A	B	C	D	E	F
1	General	Fixed	Dollar	Percent	Scientific	
2	12	12.00	\$12.00	1200.00%	1.20E+01	
3	1234	1234.00	\$1234.00	123400.00%	1.23E+03	
4	1234.56	1234.56	\$1234.56	123456.00%	1.23E+03	
5	1234.5678	1234.57	\$1234.57	123456.78%	1.23E+03	
6	1234.567887	1234.57	\$1234.57	123456.79%	1.23E+03	
7	1234.5678765	1234.57	\$1234.57	123456.79%	1.23E+03	
8						
9						
10						
11						
12						
13						
14						

To change the number of decimal places

Unless you specify otherwise, Works displays two decimal places in your numbers in all formats except General. You can choose to display up to 15 decimal places.

To change the number of decimal places:

- 1 Select the cells for which you want to change the number of decimal places.

- 2 Choose Number of Decimals from the Format menu.
- 3 Type the number of decimal places you want displayed.
- 4 Click the OK button or press the Return key.

Works adjusts the numbers accordingly.

You can choose to display numbers with or without commas. If you type commas into your numbers as you enter them, Works treats the number as text.

To choose whether or not to show commas:

- 1 Select the cells you want to format.
- 2 Choose Commas or No Commas from the Format menu.

Aligning Cell Contents

Numeric values in Works are automatically right-aligned (they line up on the right of the cell), so that columns of numbers are easy to read. Labels automatically line up on the left of the cell. However, you might want to center or right-align your labels, or left-align your numbers. So Works lets you specify the alignment of cells. You can select columns, rows, a single cell, or a block of cells to realign.

To change the alignment of cells:

- 1 Select the cell(s) whose alignment you want to change.
- 2 Choose Align Left, Align Center, or Align Right from the Format menu.

Works adjusts the alignment of the selected cell or cells.

Adding Emphasis

Spreadsheet cells contain normal (plain) type unless you change the type with the Format menu. You can add emphasis to the content of any cell by changing the style of the cell to bold and/or underlined text.

To display numbers with commas

To change alignment

To change type style

Changing Column Width

The standard width of a column is 12 characters. A single column can display up to 40 characters. That's large enough to show long labels like Advertising and Total Invoices.

When something doesn't fit in a cell, you can widen the cell. In General format, numbers are displayed as accurately as possible given the width of the column, using scientific notation if necessary.

You change the width of a column by dragging the line at the right of the column heading or by choosing Column Width from the Format menu.

To change column width by dragging:

- 1** Position the pointer on the right edge of the column heading. The pointer becomes a two-way arrow.
- 2** Drag to the right to make the column wider, or to the left to make the column narrower.

To change column width by using the Format menu:

- 1** Select a cell in the column you want to change.
You can select cells in multiple adjacent columns if you want to change the width of all of them.
- 2** Choose Column Width from the Format menu.
- 3** Type a number, up to 40, for the overall column width.

When you enter a label, if you type more characters than will fit in a cell before you've widened it, Works continues the label into adjacent blank cells, if possible. When you enter a number that is too long for a cell, Works displays the cell filled with number signs (#).

Protecting Cells from Changes

When you set up forms for other people to fill in, or if you have important formulas that took a long time to set up, you probably would like to protect this work from being changed. In Works, you can do this with cell protection. Later on, if you need to change the contents of a protected cell, you can remove cell protection.

To change column width

To set cell protection

You can set protection separately for each cell or range of cells.

To set cell protection:

- 1 Select the cell or range of cells you want to protect.
- 2 Choose Protected from the Options menu.

Works protects the selected cells.

You won't be able to type in the protected cells unless you remove cell protection. The values in cells with formulas still change, but you won't be able to change the formulas themselves until you remove cell protection.

To remove cell protection

To remove cell protection:

- 1 Select the cell or range of cells whose protection you want to remove.
- 2 Choose Not Protected from the Options menu.

Printing

When you're ready to print a Spreadsheet document, you can specify page breaks and set up headers and footers to print at the top and bottom of every page.

For a detailed explanation of the printing process, including how to fill out the necessary dialog boxes, see "Printing a Document" in Chapter 1. This section discusses only items that are specific to printing a Spreadsheet document.

Setting Page Breaks

In a Spreadsheet document, you can set both horizontal and vertical page breaks. Works automatically sets page breaks according to the margins you choose in the Page Setup command from the File menu. But you may want to specify your own page breaks. That's what the Set Page Break command is for.

To set a page break

To set a page break:

- 1 Select the cell that you want to be at the upper-left corner of the new page.
- 2 Choose Set Page Break from the Options menu.

Vertical and horizontal dashed lines (page break indicators) show where you've set the page break.

If you select cell D3, Works inserts these vertical and horizontal page break indicators.

Budget (SS)					
	A	B	C	D	E
1		Alpine Race Budget			
2					
3	Expenses	May	Percent	June	Percent
4	Basic Food	\$30,000	22%	\$10,000	15%
5	Special Food Requests	\$6,000	4%	\$6,000	9%
6	Lodging	\$60,000	44%	\$20,000	30%
7	Bicycles	\$20,000	15%	\$5,000	7%
8	Promotions	\$12,000	9%	\$12,000	18%
9	Total Expenses	\$128,000	95%	\$53,000	79%
10					
11	Total Budget Available	\$135,000	100%	\$67,500	100%
12					
13	Under (Over) Budget	\$7,000	5%	\$14,500	21%
14					

To set a page break across an entire row or column, select the row or column heading before choosing the Set Page Break command.

To remove a manual page break:

- 1 Select the cell in the upper-left corner of the page.
- 2 Choose Remove Page Break from the Options menu.

Works removes the manual page break — both the horizontal and vertical dashed lines.

You can remove just the horizontal page break or just the vertical page break by selecting any cell just below or to the right of the dashed line, respectively, before choosing Remove Page Break.

Printing a Spreadsheet Document

When you're ready to print a Spreadsheet document, you have three options. You can choose to print:

- All cells through the last cell.
- Only cells that appear in the window.
- Only selected cells.

If you use the Print command without selecting any cells, Works prints all cells through the last cell.

To remove a manual page break

With each of these options, you can choose whether or not to print row and column headings. If you want these printed, click the Print Row and Column Numbers option in the Page Setup dialog box.

With the ImageWriter printer, you can also choose to print any selection reduced to 50% of its original size by clicking the 50% Reduction option in the Page Setup dialog box.

To print an entire Spreadsheet document

To print an entire Spreadsheet document:

- 1 Make sure that no more than one cell is selected in the document. (Otherwise, Works will print only the selected cells.)
- 2 Choose Page Setup from the File menu.
- 3 Click the appropriate options and type any text you want for a header and footer.
- 4 Click the OK button or press the Return key.
- 5 Choose Print from the File menu.
- 6 Click the appropriate options.
- 7 Click the OK button or press the Return key.

Works prints your entire Spreadsheet document. If the document is too wide to fit on one page, Works prints the remaining columns for the rows that fit on one page, on subsequent pages before continuing to print the remaining rows.

To print a Spreadsheet document horizontally

Normally, the Spreadsheet prints across the narrow part of the page. Because Spreadsheet documents are often wider than they are long, you may want to print in the wider direction.

To print a Spreadsheet document horizontally:

- 1 Choose Page Setup from the File menu.
- 2 Click the icon showing horizontal (wide) printing for the Orientation.
- 3 Click the OK button or press the Return key.
- 4 Choose Print from the File menu.
- 5 Click the appropriate options.
- 6 Click the OK button or press the Return key.

Works prints your Spreadsheet document horizontally on the paper.

To print just the active window:

- Choose Print Window from the File menu.

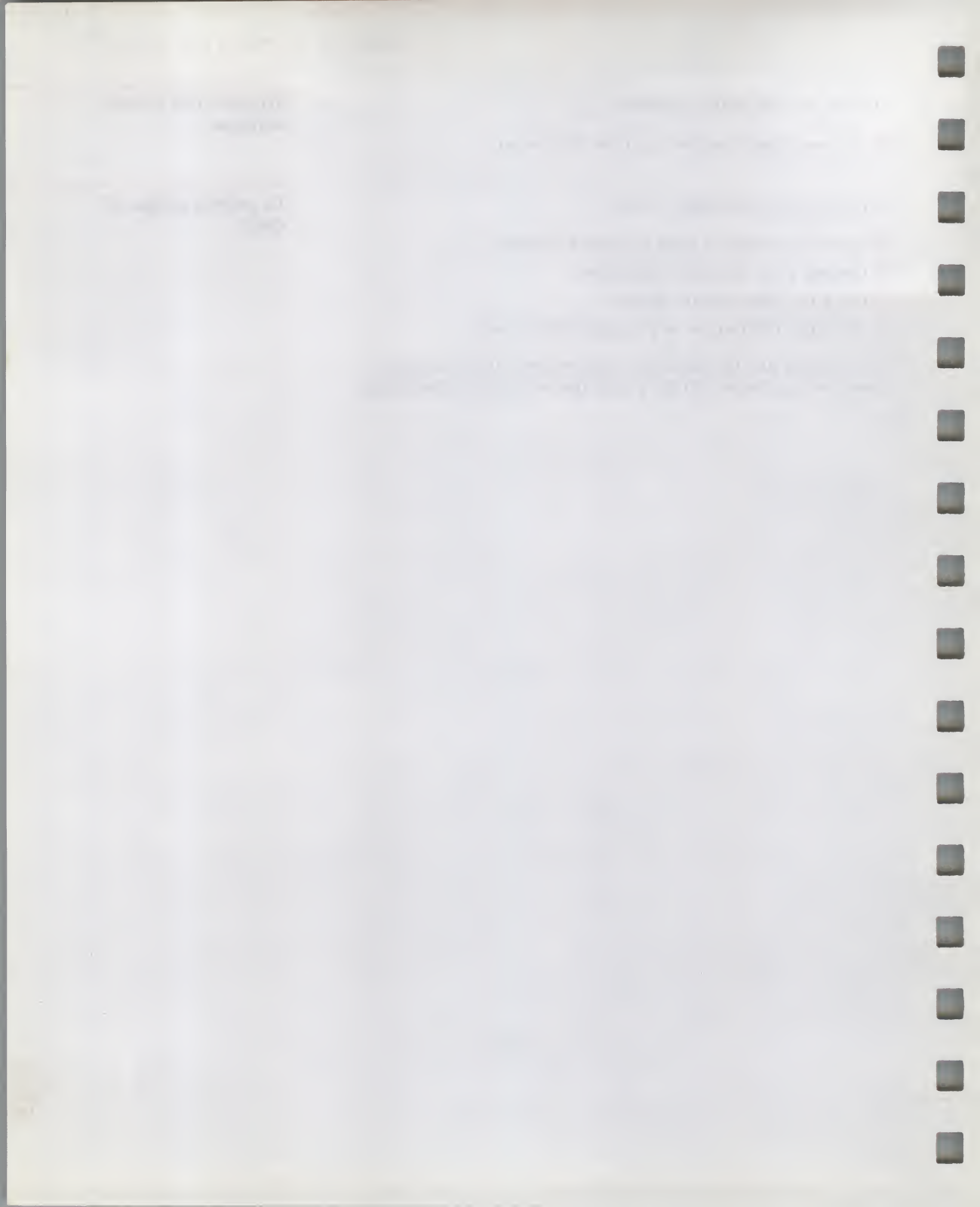
To print the active window

To print a selected range of cells:

- 1 Select the range of cells you want to print.
- 2 Choose Print from the File menu.
- 3 Click the appropriate options.
- 4 Click the OK button or press the Return key.

To print a range of cells

Works prints just the selected range of cells. If the selection crosses a page break, Works prints the selection on two pages.



14 Charting a Spreadsheet Document

This chapter explains how to use the Spreadsheet's charting capability to plot the information in your Spreadsheet documents. You'll learn how to:

- Create series charts.
- Create pie charts.
- Work with chart definitions and charts.

The Spreadsheet's charting capability converts information from Spreadsheet documents into charts. Each Spreadsheet document can have up to eight chart definitions stored with it. A chart definition consists of the information you specify in a dialog box for either a series chart or a pie chart.

When you're trying out different scenarios in the Spreadsheet — changing the numbers or the formulas you use for calculation — the results show up immediately on your chart. Charts can speed up your analysis of numbers. Relationships that are otherwise hard to see show up easily on a chart.

Charts also enhance presentations. If you use an overhead projector and have a LaserWriter printer, you can make changes up to the last minute, and print the charts directly on overhead transparencies. Or, you can have your printed charts made into slides.

You can use information from other spreadsheet or database programs to make charts. Just copy the information into a Works Spreadsheet document; then you're ready to create a chart. For more information, see Appendix B, "Using Works with Other Applications."

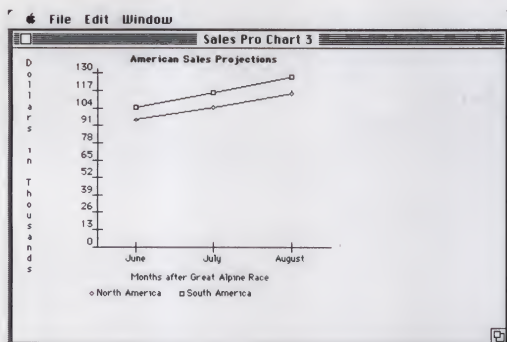
Works can create two types of charts: series charts and pie charts.

- Series charts show relationships between numbers. For example, a series chart might illustrate a company's total sales for each of the last four quarters.
- Pie charts help you see proportions of a whole. For example, a pie chart might show a breakdown of your expenses as part of an overall budget.

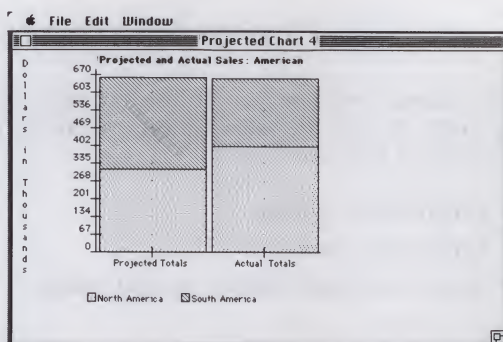
**Types of charts
Works can create**

Series Charts

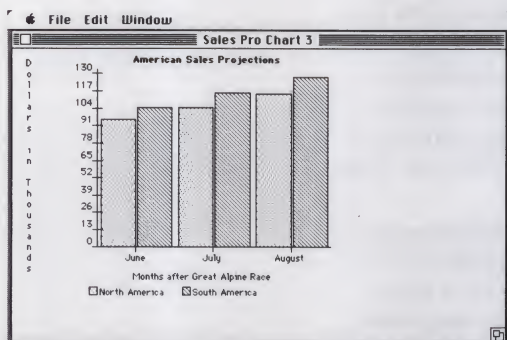
This section gives a brief overview of the different kinds of series charts, and describes how to create them. Works draws four types of series charts: line charts, bar charts, stack charts, and combination (called "combo" in the dialog box) charts.



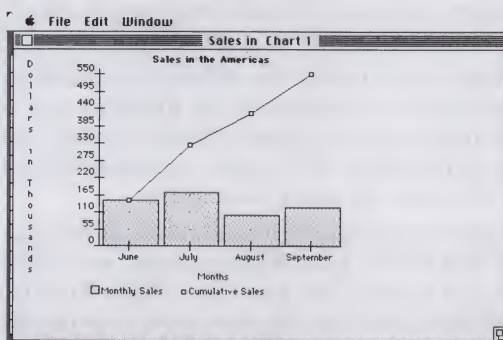
Line Chart



Stack Chart



Bar Chart



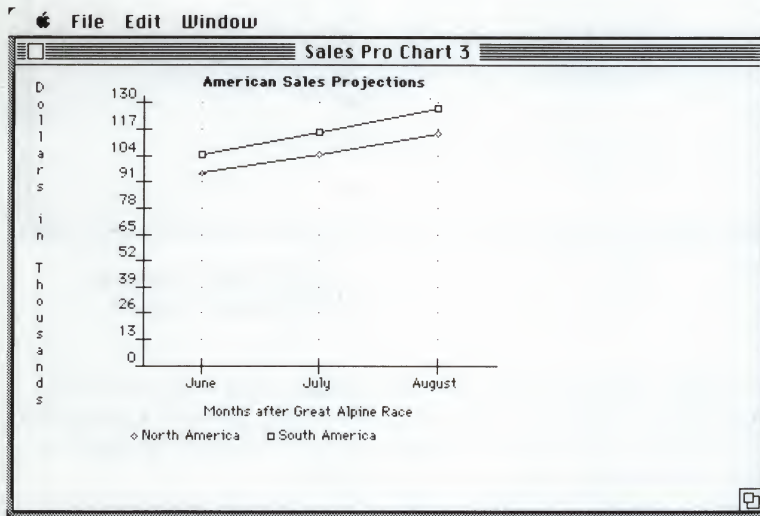
Combination Chart

Each of these charts gives you a different way of looking at the same information. The type you use depends on the information you're analyzing, or how you want to show it. It's similar to working with an artist: you supply the information and explain what kind of chart you want, and the artist draws it. Of course, with Works you can use the same information with different types of charts to see quickly which one works best.

Line and Bar Charts

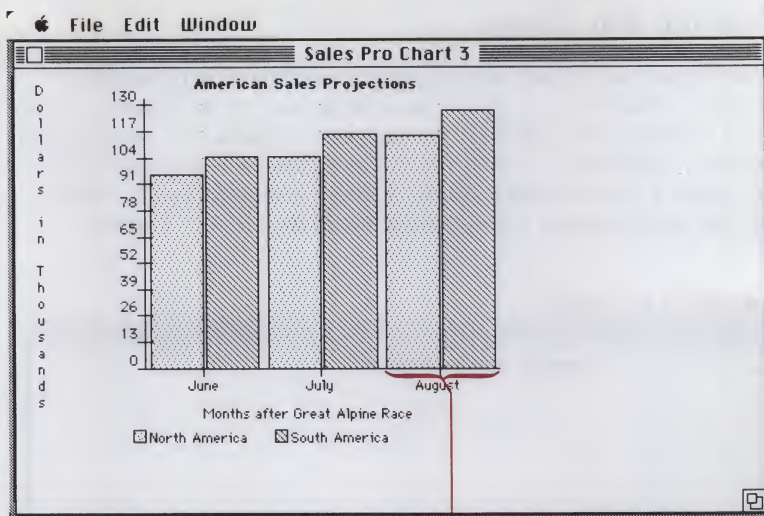
A line chart uses a line to link together points that represent numbers. When you compare more than one set of numbers, each set of numbers has one line. As each line crosses the categories on the horizontal axis, it marks the intersection with a distinct symbol called a point marker. In the following illustration, for example, the point marker representing South America is a square.

Line charts



For a single set of numbers (three months of North American sales projections, for example), a bar chart draws a series of bars, each representing one number. When you're comparing more than one set of numbers, such as three months of sales projections for North America and South America, a bar chart groups the numbers by category (months, in this case), so you can see at a glance how the figures for each month compare.

Bar charts



Bars for each category are grouped together.

When to use line or bar charts

Line charts are very effective at showing a trend—a growth or decline in numbers over time. Use line charts when it's important to see trends over a period of time—how last year's growth curve compares to this year's, for example.

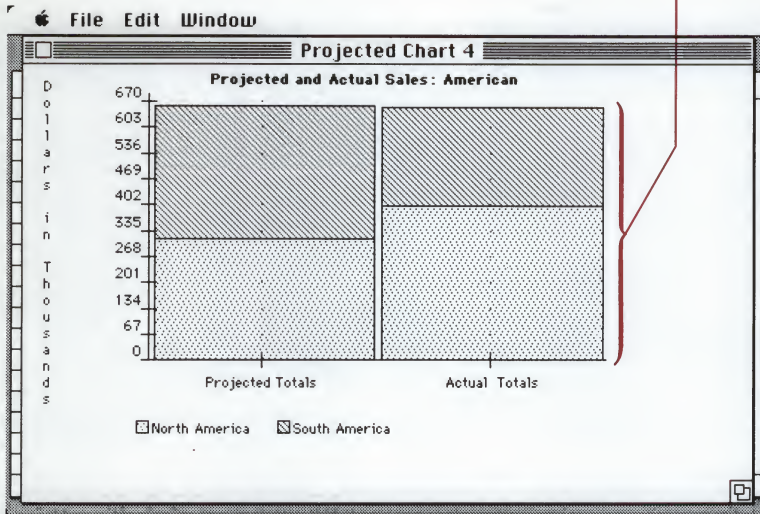
Bar charts compare sets of numbers divided into discrete categories. Use bar charts when it's important to compare numbers within a category of numbers—April of this year and April of last year, for example.

Stack and Combination Charts

Stack charts

Stack charts are a variation on bar charts. Stack charts illustrate component parts of a total as they change. For example, the stack chart below shows how sales projections in North and South America compare with actual sales.

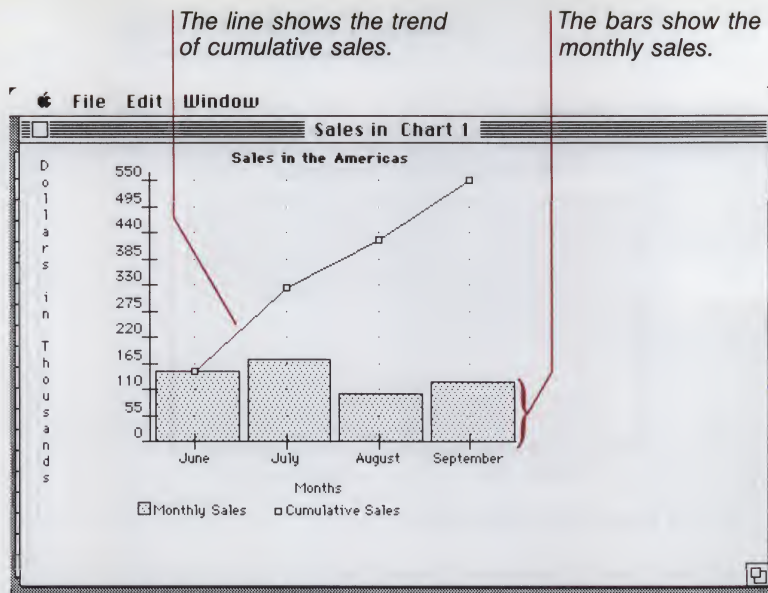
*Components stack to show totals,
and are easily compared.*



A regular bar chart doesn't show these amounts added up, so although you see how the amounts compare, you don't see their total.

Combination charts combine a bar chart with a line chart. Use combination charts when you want to see one set of numbers (with bars) and the trend of another set of numbers (with a line) at the same time.

Combination charts



Creating a Series Chart

To create a series chart

To set up a chart definition for a series chart, you use a chart definition dialog box. In this dialog box, you provide all the information Works needs to draw a series chart of your Spreadsheet data. You specify the chart type, a chart title, titles for the vertical and horizontal scales, the headings of the columns and rows to be charted and to be used for the data legend and the horizontal titles, and the vertical scale of the chart.

To see the chart definition dialog box:

- Choose New Series Chart or Select Definition from the Chart menu.

Choosing New Series Chart takes you directly to a new chart definition dialog box.

Choosing Select Definition gives you the Select Chart dialog box. Select a chart definition name and click the OK button to see the chart definition dialog box.

The following illustration shows how you use the information in your Spreadsheet document to set up a chart definition in the dialog box and to create a chart.

Rows and columns you specify as Values to be Plotted define the parameters of your chart.

Apple File Edit Window Select Format Options Chart

Sales Projections (\$K)						
	A	B	C	D	E	F
1	Region	June	July	August	Summer Total	Percent
2						
3	Africa	\$80	\$88	\$97	\$265	10.7%
4	Asia/Pacific	\$100	\$110	\$121	\$331	13.4%
5	Northern Europe	\$99	\$109	\$120	\$328	13.2%
6	Central Europe	\$200	\$220	\$242	\$662	26.7%
7	Southern Europe	\$70	\$77	\$85	\$232	9.3%
8	North America	\$95	\$104	\$118	\$314	12.7%
9	South America	\$105	\$116	\$127	\$348	14.0%
10						
11	Total	\$749	\$824	\$906	\$2,479	100.0%
12						
13						
14						
15						
16						
17						

Apple File Edit Window

Sales Pro Chart 1

Type of Chart: ☐ LINE ☒ BAR ☐ STACK ☐ COMB

Values to be Plotted:

1st Row: 8
2nd Row: 9
3rd Row:
4th Row:
From Column: B
To Column: D
Data Legends in Column: A
Horizontal Titles in Row: 1

Vertical Scale: ☒ Numeric ☐ Semi-Logarithmic

Maximum:
Minimum: 0

☒ Draw Grid ☒ Label Chart

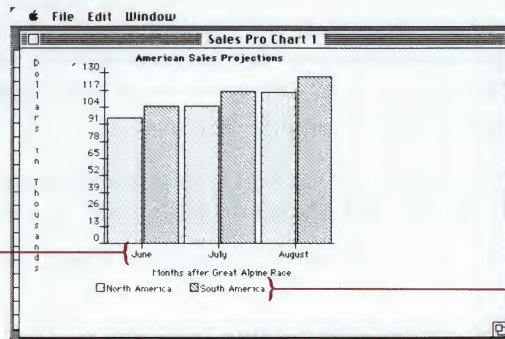
Chart Title: American Sales Projections
Vertical Scale Title: Dollars in Thousands
Horizontal Scale Title: Months after Great Alpine Race

Cancel Plot It!

The column range and row number you specify here...

The rows and column you specify here...

... determine the horizontal titles.



...determine the data legend.

To specify a chart title**Specifying a Chart Title**

You can put a title on the chart itself by typing it in the Chart Title box of the chart definition dialog box. If you don't specify a title, Works will plot the chart without any title.

To specify a chart title:

- ☐ Type a title in the Chart Title text box.

When you plot the chart, this title appears directly above the chart.

To choose a chart type**Choosing a Chart Type**

The four icons in the upper-left corner of the New Series Chart dialog box let you choose between a line chart, a bar chart, a stack chart, or a combination (combo) chart.

To choose a chart type:

- ☐ Click the icon that represents the type of chart you want to make.

If you aren't sure what type you want, review the descriptions at the beginning of this section, or just choose a type to experiment with. You can easily change to another type later.

To specify titles for scales**Specifying Titles for the Horizontal and Vertical Scales**

You can specify titles for the horizontal and vertical scales of the chart. Scale titles help to explain the units of information shown on the scales. If you don't type scale titles in the text boxes, Works will not show any vertical and horizontal scale titles.

To specify titles for the scales:

- ☐ In the New Series Chart dialog box, type titles in the Vertical Scale Title and Horizontal Scale Title text boxes.

When you plot the chart, these titles appear on the chart itself.

Choosing the Information To Chart

Numbers define the chart, telling Works how high to make a bar or where to put a point on the scale.

The numbers that define a chart are in the rows and columns of your Spreadsheet document. Works lets you plot up to four sets of information in a series chart. That means you can choose up to four rows from a Spreadsheet document for charting.

To specify the rows and columns that you want to chart:

- 1** Move the New Series Chart dialog box aside by dragging its title bar so you can see the rows and columns you want to chart.
- 2** In the Values to be Plotted boxes, type the headings (numbers) of the rows that contain the values you want to chart from the Spreadsheet document.
If the data you want to chart is in columns, you'll need to transpose it into rows before charting. Activate the Spreadsheet document and use the Copy and Paste with Options commands from the Edit menu.
- 3** In the From Column and To Column boxes, type the headings of the columns which begin and end the information you want in the rows you specified in step 2.
Works will chart numbers in the specified rows from the beginning column to the ending column. The columns must be adjacent to one another.

Labels help you identify your numbers. Your Spreadsheet row labels (the text that describes the information in the rows) become the data legend. The data legend describes the sets of information in the chart. Your Spreadsheet column labels (the text that describes the information in the columns) become titles for the horizontal axis. Works calls these horizontal titles.

To specify a data legend and horizontal titles:

- 1** In the Data Legends in Column box, type the heading of the column containing the labels for the rows of information you're charting.
The data legend will appear at the bottom of the chart, and will identify the shading patterns used for each bar in a bar chart, or the shape of the point marker used for each line in a line chart.
- 2** In the Horizontal Titles in Row box, type the heading of the row containing the labels for the columns that you're charting.
These labels will appear along the horizontal scale to label each bar in a bar chart or each point in a line chart. (If you are charting many columns, there may not be room for every label on the chart, so Works will show representative labels.)

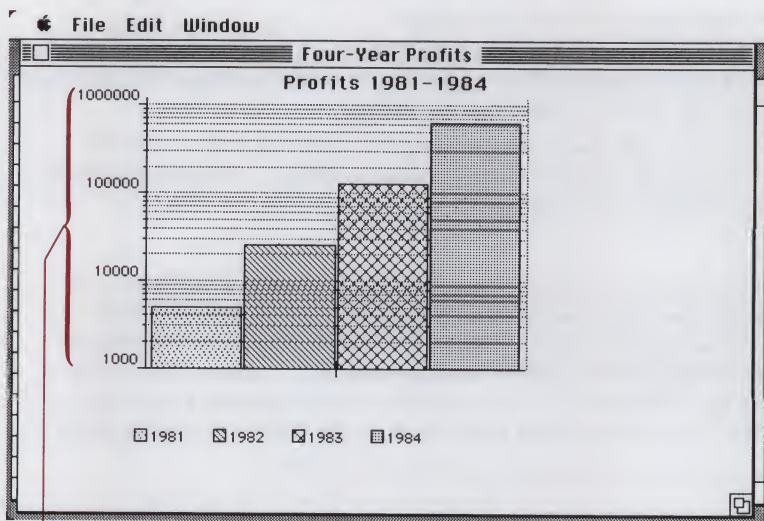
To specify rows and columns to chart

To specify a data legend and horizontal titles

To set the vertical scale

Setting the Vertical Scale

You can choose to have a numeric scale or semi-logarithmic scale for the chart. A numeric scale is divided into ten regular increments — 10, 20, 30, 40, ...100, for example. A semi-logarithmic scale exaggerates the size of smaller numbers and minimizes the size of larger numbers. It makes it easier to show very large numbers and very small numbers on the same chart. For example, with a semi-logarithmic scale, the distance on the chart below between 1000 and 10,000 is the same as the distance between 10,000 and 100,000.

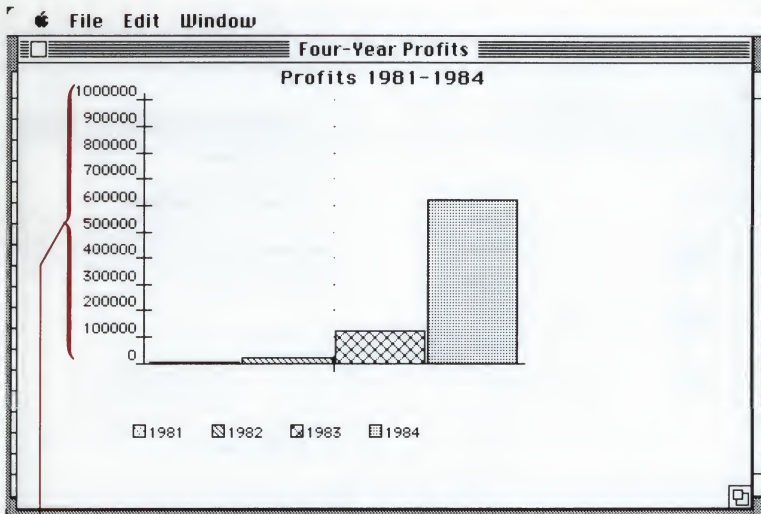


Semi-logarithmic scale

You can also choose to limit the chart to a certain range, between a minimum and a maximum. You might want to do this if all your amounts were greater than a certain amount, like a million, or less than a certain amount, like two million, or between two amounts. If your minimum were one million and your maximum two million, you could use the full range of the chart to see the numbers between those two figures.

Setting a maximum can also make a chart with a numeric scale easier to read. When you choose a numeric scale, Works uses the largest number in the chart as the top of the scale. Works divides the scale into ten segments. For example, if the largest number is 793, each marker on the vertical scale will be a multiple of 79 (79, 158, 237, ...). To establish more standard divisions, you can

set a maximum that is a multiple of ten. For example, with a maximum of 1,000,000, you'll have divisions at 100,000, 200,000, and so forth.



Numeric scale with maximum set to 1,000,000

To set the vertical scale:

- 1 In the New Series Chart dialog box, click Numeric or Semi-Logarithmic for the vertical scale.
- 2 Type a maximum, a minimum, or both, if you want them.

Choosing To Show a Grid or Labels

A grid helps you see where points on the chart line up on the scales. Labels (titles) help you identify what the numbers mean. You can choose whether or not a chart will show the grid or the labels.

To show the grid or labels, if they are not already checked in the New Series Chart dialog box:

- ☒ Click the Draw Grid option.
- or
- ☒ Click the Label Chart option.

If the options are checked already, and you do not want either a grid or the labels on your chart, click to remove the checkmark.

To choose a grid or labels

Your chart definition is now complete.

Click an icon to tell Works what type of chart you want.

Set a maximum or minimum for the vertical scale here.

Works abbreviates the chart definition name, if necessary.

Sales Pro Chart 1

Type of Chart: ☐ LINE ☒ BAR ☐ STACK ☐ COMBO

Values to be Plotted:
 1st Row: 5
 2nd Row: 7
 3rd Row:
 4th Row:
 From Column: B
 To Column: D

Vertical Scale:
☒ Numeric
☐ Semi-Logarithmic
 Maximum:
 Minimum: 0

Data Legends in Column: A
Horizontal Titles in Row: 1

Chart Title: N. and S. Europe Sales Projections
Vertical Scale Title: Dollars in Thousands
Horizontal Scale Title: Months after Great Alpine Race

☒ Draw Grid ☒ Label Chart

Cancel Plot It!

Click here to draw a series chart.

Click to remove the checkmarks if you don't want a grid or labels on the chart.

Plotting the Chart

After you've filled out the dialog box, you can take any of the following actions.

To plot the chart

To plot the chart:

- Click the Plot It! button.

Works draws the chart and stores the definition with the Spreadsheet document.

To then return to the chart definition dialog box:

- Double-click anywhere in the chart window.

To store the chart definition without drawing the chart:

- Click the close box.

Works stores the definition and returns you to the Spreadsheet document.

To return to the Spreadsheet document without storing the chart definition or drawing the chart:

- Click the Cancel button.

If you want to continue working with your series chart before you begin to learn about pie charts, skip ahead in this chapter to “Working with Charts and Chart Definitions.”

Pie Charts

This section explains what pie charts show, what you might use them for, and how to create them.

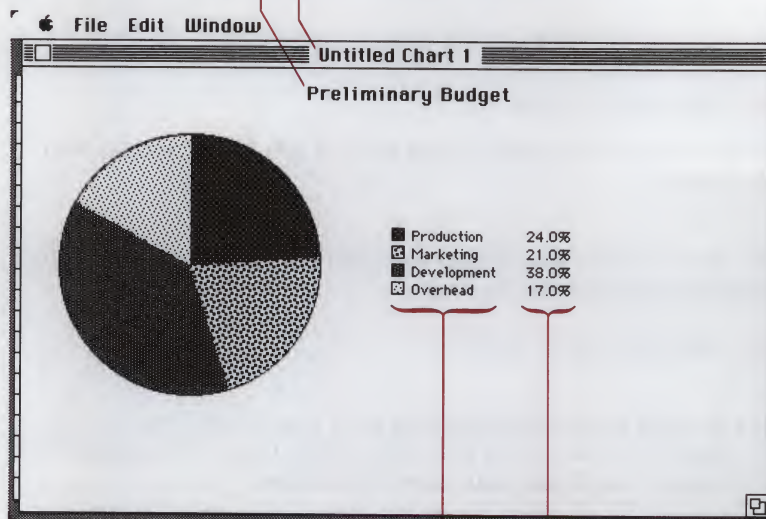
Pie charts compare parts of a whole. For example, a pie chart can illustrate which parts of a company's budget are allocated to production, marketing, development, and overhead.

To avoid plotting the chart

When to use a pie chart

You can supply a title in the Chart Title text box.

You can change the chart definition name using the Change Chart Name command from the Edit menu.



Specify value titles in the Column of Value Titles text box.

Specify column and rows to be charted in the Plot Values in Column, From Row, and Through Row text boxes.

Creating a Pie Chart

Pie charts compare only one set of information, dividing it into parts of a total — the pie. In a Spreadsheet document, this corresponds to one column of numbers. A column of labels provides the key for each slice of the pie. Works calls these labels value titles.

If you have a Spreadsheet document with several columns of information that you want to chart as pie charts, you can define a pie chart for each column. Each of the pie chart definitions will be stored with your Spreadsheet document, so that you can look at them at any time.

To create a pie chart

To set up a chart definition for a pie chart, you use a chart definition dialog box. In this dialog box, you specify the column containing the values you want to plot, the beginning and ending row headings, and the column containing the labels for the value titles.

To see the chart definition dialog box:

- Select New Pie Chart or Select Definition from the Chart menu.

Choosing New Pie Chart takes you directly to a new chart definition dialog box.

Choosing Select Definition gives you the Select Chart dialog box. Select a chart definition name and click the OK button to see the chart definition dialog box.

Specifying a Chart Title

You can put a title on the chart itself by typing it in the Chart Title box of the chart definition dialog box. If you don't specify a title, Works will plot the chart without any title.

To specify a chart title:

- Type a title for the chart in the Chart Title box.

When you plot the chart, this title appears directly above the chart.

To specify a chart title

Completing the Chart Definition

When you define a pie chart, you need to tell Works which values to plot. Fill in the rest of the New Pie Chart dialog box to indicate which values you want to plot and which value titles you want to use. Remember that you can move the dialog box to see the Spreadsheet document by dragging the title bar of the window.

Preliminary Chart 2

Pie Chart Definition:

Chart Title: Preliminary Budget

Plot Values in Column: B

From Row: 2

Through Row: 5

Column of Value Titles: A

Cancel Plot it!

Plotting the Chart

After you've filled out the dialog box, you can take any of the following actions.

To plot the chart

To plot the chart:

- Click the Plot It! button.

Works draws the chart and stores the definition with the Spreadsheet document.

To then return to the chart definition dialog box:

- Double-click anywhere in the chart window.

To avoid plotting the chart

To store the chart definition without drawing the chart:

- Click the close box.

Works stores the definition and returns you to the Spreadsheet document.

To return to the Spreadsheet document without storing the chart definition or drawing the chart:

- Click the Cancel button.

To learn about more ways to work with your pie chart, continue on to the next section, "Working with Charts and Chart Definitions."

Working with Charts and Chart Definitions

Once you've set up a chart definition for either a series chart or a pie chart, you can continue to work with it. You can:

- Change the name of a chart definition.
- Select either a chart or a chart definition to look at again.
- Change a chart by changing information in the Spreadsheet document or by changing its definition.
- Copy or remove chart definitions from a Spreadsheet document.

This section tells you how to work with all types of charts.

Changing Chart Definition Names

The title bar of a chart definition dialog box shows the name of the chart definition. When you set up several chart definitions for a single Spreadsheet document, you'll be able to identify each one by name.

Unless you specify a name with the Edit menu as described below, Works automatically names each chart definition with the name of the Spreadsheet document plus the word "Chart" and a number from 1 to 8. If the Spreadsheet document name is too long to fit, Works abbreviates it.

If you prefer, you can change the name of a chart definition to make it more meaningful to you.

To change the name of a chart definition:

- 1 When a chart definition dialog box is open, choose Change Chart Name from the Edit menu.
- 2 Type a new name in the box.
- 3 Click the OK button or press the Return key.

The name in the title bar of the dialog box changes to reflect what you typed. You'll see this same name in the title bar of the chart when you plot the chart, and in the dialog boxes that appear for other commands from the Chart menu. The name of the chart definition doesn't appear on the chart itself, however. You can put a title on your chart by typing it in the Chart Title box in the chart definition dialog box.

To change a chart definition name

Selecting a Chart

After you've defined a chart, you can choose to draw it directly from the Chart menu. You don't have to set up a new definition every time you want to chart something.

Here's how to draw a chart quickly:

- 1 Choose Draw Chart from the Chart menu.
Works displays a dialog box listing the chart definitions stored with the active Spreadsheet document.
- 2 Select the chart you want to see.
- 3 Click the OK button or press the Return key.

Works draws the chart.

To draw a chart

Selecting a Chart Definition

If you've set up a chart definition, you might want to look it over or make changes. You can move to a chart definition dialog box either from the Chart menu (when you're working in the Spreadsheet) or from the chart itself.

To see a chart definition from the Chart menu

When you want to look at a chart definition for a Spreadsheet document, you can use the Chart menu.

- 1** Choose Select Definition from the Chart menu.
Works displays a dialog box listing the chart definitions stored with the active Spreadsheet document.
- 2** Select the definition you want to see.
- 3** Click the OK button or press the Return key.

Works opens the dialog box containing the definition you specified.

To see a chart definition from the chart

The Chart menu is not available when you're looking at a chart. But you can still return to the chart's definition if you want to make changes:

To see the chart definition when a chart window is open:

- ☐ Double-click anywhere in the chart window.

Works displays the chart definition dialog box.

Changing a Chart

You may find that you need to change something about a chart. You can change the actual contents of a Spreadsheet document and see those changes reflected immediately in the chart. Or you can change the chart definition: the information you want to chart, the type of chart, the titles on the chart, or the scale.

You can work on a Spreadsheet document and a chart at the same time, as you analyze your information. If you're making projections or comparing alternatives, you see graphically how alternative numbers or calculations affect your results — without waiting, because the chart is linked directly to the Spreadsheet document.

To change Spreadsheet information while charting:

- 1** Click anywhere in the Spreadsheet window to activate it.
- 2** Select the cells you want to change and make the changes.

As you enter the changes in the Spreadsheet document, the chart will reflect them.

To change the Spreadsheet while charting

The chart definition tells Works what information to plot and where to put it. You can change a chart definition whenever you want.

To change a chart definition:

- 1** Open a chart definition dialog box.
You can do this from the Chart menu or by double-clicking a chart.
- 2** Change the appropriate information in the definition.
- 3** Click Plot It! to see the changed chart, or click the close box to save the changes to the definition and discard the original definition.

Remember, if you change your mind, you can always click Cancel to return to the Spreadsheet document without storing the changes to the definition or seeing the chart.

Copying a Chart Definition

Works lets you make a copy of a chart definition. Then you can make changes to the copy without changing the original. You'll find this useful if you need to make several similar charts from the same Spreadsheet document.

To copy a chart definition:

- 1** Choose Duplicate Chart from the Chart menu.
Works displays a dialog box listing the chart definitions stored with the active Spreadsheet document.
- 2** Select the definition you want.
- 3** Click the OK button or press the Return key.

The chart definition dialog box appears. You can change the title of the chart and its characteristics.

When you click Plot It! or the close box, you store the new definition with the Spreadsheet document. The original definition remains on the disk as well.

To change a chart definition

To copy a chart definition

Removing a Chart Definition

Suppose you decide you no longer need a chart, or accidentally make a chart you don't want. Or perhaps you already have the limit of eight definitions, and you want to make a new one. You can remove a chart definition you don't want to make room for another.

To remove a chart definition

To remove a chart definition:

- 1 Choose Erase Chart from the Chart menu.
Works displays a dialog box listing the chart definitions stored with the active Spreadsheet document.
- 2 Select the definition you want to remove.
- 3 Click the OK button or press the Return key.

Works removes the chart definition.

15 Spreadsheet Functions

This chapter is divided into three sections:

- A discussion of the arguments expected by Works functions.
- A brief listing of the available Spreadsheet functions arranged by subject category.
- A detailed alphabetical directory of these functions.

Arguments to Functions

A function can have no arguments or it can have one or more arguments. Arguments can be numbers, formulas, cell references, or range references. Arguments can also be other functions that evaluate to a number.

An empty cell or a cell containing text is normally treated as 0 when used as an argument to a function. However, the functions Average, Count, Max, Min, SSum, StDev, Sum, and Var ignore these cells completely.

In Works, all function arguments have a numeric value. In some cases, however, these values represent a logical value of either TRUE or FALSE. The first argument in the If function is an example. For such arguments, the number 0 represents the logical value FALSE, and all other numbers represent the logical value TRUE.

For example, `If(A1,3,4)` equals 3 where A1 contains -1 or 2, and `If(A1,3,4)` equals 4 where A1 contains 0 or is blank.

Similarly, all functions in Works return numeric values as results. In some cases, however, these values represent a logical value of either TRUE or FALSE. The IsNA function is an example. As the result of such functions, the number 0 represents the logical value FALSE, and the number 1 represents the logical value TRUE.

For example, `IsNA(A1)` equals 1 where A1 contains N/A, and `IsNA(A1)` equals 0 where A1 contains a label or a number, or is blank.

The And, Or, and Not functions are examples of both these types of functions in that their arguments, as well as their results, are logical values represented by numbers.

For example:

Not(1) equals 0

And(- 1,2,4) equals 1

Not(2) equals 0

And(- 1,2,0) equals 0

Not(0) equals 1

Or(0,0,5) equals 1

Notation conventions

In the function directory that follows, arguments are described with this notation:

Value or number

Refers to an argument that must be a number, cell reference, or formula, as in Min(2,3), Min(A1,B1), or Min(3 + A1,Sqrt(4))

Range

Refers to an argument that must be a range reference, such as B9:F9

Values

Refers to an argument that can be any of the above

To distinguish different arguments in a function, numbers are added to the standard notation, as in *value-1*, *value-2*, *range-1*, *range-2*, *values-1*, *values-2*, and so on. When there is a useful descriptive word for an argument, such as "rate" in a financial function, that word is used in place of the generic term "value." Sometimes, the standard notation is modified by another word, as in *lookup-number* or *compare-range*.

Functions by Subject Category

The detailed directory of functions in this chapter is presented in alphabetical order for quick reference. However, to help you more readily see what functions are available in Works, they are also presented below, grouped by subject category.

Mathematical functions

Mathematical Functions

Abs(*number*)

Absolute value of *number*

Exp(*number*)

e to the power *number*

- Int(*number*)
Integer part of *number*
- Ln(*number*)
Logarithm, base e, of *number*
- Log10(*number*)
Logarithm, base 10, of *number*
- Mod(*number*,*divisor-number*)
Remainder of *number* divided by *divisor-number*
- Pi()
Value of π
- Rand ()
Random number between 0 and 1
- Round(*number*,*number-of-digits*)
Number rounded to *number-of-digits*
- Sign(*number*)
Sign of *number*
- Sqrt(*number*)
Square root of *number*

Statistical Functions

Statistical functions

- Average(*values-1*,*values-2*,...)
 - Average of values in *values*
- Count(*values-1*,*values-2*,...)
 - Count of values in *values*
- Max(*values-1*,*values-2*,...)
 - Maximum value in *values*
- Min(*values-1*,*values-2*,...)
 - Minimum value in *values*
- SSum(*values-1*,*values-2*,...)
 - Sum of *values* displayed on the screen
- StDev(*values-1*,*values-2*,...)
 - Standard deviation of *values*
- Sum(*values-1*,*values-2*,...)
 - Sum of *values*
- Var(*values-1*,*values-2*,...)
 - Variance of *values*

Trigonometric functions

Trigonometric Functions

ACos(*number*)

Arccosine of *number*

ASin(*number*)

Arcsine of *number*

ATan(*number*)

Arctangent of *number*

ATan2(*x-number*,*y-number*)

Arctangent of point (*x-number*,*y-number*)

Cos(*number*)

Cosine of *number*

Degrees(*number*)

Converts *number* from radians to degrees

Radians(*number*)

Converts *number* from degrees to radians

Sin(*number*)

Sine of *number*

Tan(*number*)

Tangent of *number*

Logical functions

Logical Functions

And(*values-1*,*values-2*,...))

1 (TRUE) if all *values* are non-zero (TRUE); otherwise,

0 (FALSE)

Choose(*index*,*number-1*,*number-2*,...))

Uses *index* to select a value from *numbers*

False()

Returns the value 0 (FALSE)

If(*number*,*number-if-true*,*number-if-false*)

Number-if-true if *number* is non-zero (TRUE); *number-if-false* if *number* is 0 (FALSE)

IsBlank(*values-1*,*values-2*,...))

1 (TRUE) if all *values* are blank or text; otherwise, 0 (FALSE)

IsError(*value*)

1 (TRUE) if *value* is any error value

IsNA(*value*)

1 (TRUE) if *value* is the error value N/A

Not(*number*)

1 (TRUE) if *number* is 0 (FALSE); 0 (FALSE) if *number* is non-zero (TRUE)

Or(*values-1, values-2, ...*)

1 (TRUE) if any logical value in *values* is non-zero (TRUE);
otherwise, 0 (FALSE)

True()

Returns the value 1 (TRUE)

Financial Functions

FV(*rate, nper, pmt, pv, type*)

Future value of investment

IRR(*range, guess*)

Internal rate of return of *range*

MIRR(*range, safe, risk*)

Modified internal rate of return of *range*

NPer(*rate, pmt, pv, fv, type*)

Number of payments of investment

NPV(*rate, values-1, values-2, ...*)

Net present value of *values*

Pmt(*rate, nper, pv, fv, type*)

Periodic payment of investment

PV(*rate, nper, pmt, fv, type*)

Present value of investment

Rate(*nper, pmt, pv, fv, type, guess*)

Rate returned on investment

Financial functions

Special-Purpose Functions

Error()

Returns the value *Error*

HLookup(*lookup-number, compare-range, index-number*)

Value in a table selected by *lookup-number*

Index(*range, row, column*)

Reference in *range* selected by index values *row* and *column*

Lookup(*lookup-number, compare-range, result-range*)

Value in a table selected by *lookup-number*

Match(*lookup-number, compare-range, type*)

Number of a value selected by *lookup-number*

NA()

Returns the value N/A

Type(*value*)

Type of *value*

VLookup(*lookup-number, compare-range, index-number*)

Value in a table selected by *lookup-number*

Special-purpose functions

Alphabetical Directory of Functions

The directory that follows gives detailed information and examples for each of the 54 Spreadsheet functions.

Abs

Abs(number)

The Abs function gives the absolute value of *number*.

Examples

Abs(2) *equals* Abs(-2) *equals* 2

ACos

ACos(number)

The ACos function gives the arccosine of *number*. The arccosine is the angle in radians whose cosine is *number*. *Number* must be in the range -1 to 1. The angle will be in the range 0 to π .

Examples

ACos(-0.5) *equals* 2.094 ($2\pi/3$ radians)

ACos(-0.5)*180/Pi() *equals* 120 (degrees)

And

And(values-1,values-2,...)

The And function gives the value 1 (TRUE) if all the values in the list of arguments are non-zero (TRUE). If any of the values is 0 (FALSE), And gives the value 0 (FALSE).

If a reference argument contains text or blank values, those values are ignored.

Examples

And(2+2=4,2+3=5) *equals* 1

And(2+2=5,2+3=5) *equals* 0

ASin(number)

ASin

The ASin function gives the arcsine of *number*. The arcsine is the angle in radians whose sine is *number*. *Number* must be in the range -1 to 1 . The angle will be in the range $-\pi/2$ to $\pi/2$.

Examples

ASin(-0.5) equals -0.524 ($-\pi/6$ radians)

ASin(-0.5)*180/Pi() equals -30 (degrees)

ATan(number)

ATan

The ATan function gives the arctangent of *number*. The arctangent is the angle in radians whose tangent is *number*. The angle will be in the range $-\pi/2$ to $\pi/2$.

Examples

ATan(1) equals 0.785 ($\pi/4$ radians)

ATan(1)*180/Pi() equals 45 (degrees)

ATan2(x-number,y-number)

ATan2

The ATan2 function gives the arctangent of *x-number* and *y-number*. The arctangent is the angle in radians determined by the point whose x and y coordinates are *x-number* and *y-number*. The angle will be in the range $-\pi$ to π , excluding $-\pi$.

If both *x-number* and *y-number* are 0, ATan2 gives the value 0.

Examples

ATan2(1,1) equals 0.785 ($\pi/4$ radians)

ATan2($-1, -1$) equals -2.356 ($-3\pi/4$ radians)

ATan2($-1, -1$)*180/Pi() equals -135 (degrees)

Average

Average(values-1,values-2,...)

The Average function gives the average of the numbers in the list of arguments.

The arguments should be numbers, or references that contain numbers. If a reference argument contains text or blank values, those values are ignored.

Examples

If A1:A5 contains the numbers 10, 7, 9, 27, and 2, then:

Average(A1:A5) *equals* 11

Average(A1:A5,5) *equals* 10

Average(A1:A5) *equals* Sum(A1:A5)/Count(A1:A5)

Choose

Choose(index,number-1,number-2,...)

The Choose function uses *index* to select a value from the following arguments in the list. If *index* is 1, Choose gives *number-1*; if *index* is 2, Choose gives *number-2*; and so on.

If *index* is less than 1 or greater than the number of the last value in the list, Choose gives the error value *Error*.

Example

Choose(2,10,20,30,40) *equals* 20

Cos

Cos(number)

The Cos function gives the cosine of *number*, where *number* is an angle in radians.

Examples

Cos(1.047) *equals* 0.5

Cos(60*Pi()/180) *equals* 0.5

Count(values-1,values-2,...)

Count

The Count function gives the count of the numbers in the list of arguments.

The arguments should be numbers, or references that contain numbers. If a reference argument contains text or blank values, those values are ignored.

Examples

If A1:A5 contains the numbers 10, 7, 9, 27, and 2, then:

Count(A1:A5) *equals* 5

Count(A1:A5,5) *equals* 6

Degrees(number)

Degrees

The Degrees function converts an angle in radians to degrees.

Example

Degrees(Pi()) *equals* 180

Error()

Error

The Error function takes no arguments and returns the value *Error*.

Example

Given that A1 contains the formula =Error():

If(IsError(A1),0,1) *equals* 0

Exp(number)

Exp

The Exp function gives e raised to the power of *number*. The mathematical constant e is 2.7182818..., the base of the natural logarithm.

Exp is the inverse of the Ln function (natural logarithm).

To calculate powers of other bases, use the exponentiation operator (^).

Examples

$\text{Exp}(1)$ equals 2.7182818 (the value of the natural base, e)

$\text{Exp}(\text{Ln}(3))$ equals 3

False

False()

The False function takes no arguments and returns the value 0 (FALSE).

Example

$\text{Choose}(2, \text{False}(), \text{True}(), \text{True}(), \text{False}(), \text{True}())$ equals 1

FV

FV(rate,nper,pmt,pv,type)

The FV function gives the future value of an investment involving constant cash flows.

If you omit either *pmt* or *type*, it is assumed to be 0.

For a complete description of the arguments in FV, see PV.

HLookup VLookup

HLookup(lookup-number,compare-range,index-number) VLookup(lookup-number,compare-range,index-number)

The HLookup function searches the first row of *compare-range* for the largest value that is less than or equal to *lookup-number*. Having found that value in some column of the first row, HLookup moves up or down in that column by an amount specified by *index-number* and gives the value found there.

If *index-number* is 1, HLookup gives the value from the current row. If *index-number* is 2, HLookup gives the value from the row below. If *index-number* is 0, HLookup gives the value in the row above the current row. If *index-number* is -1, HLookup gives the value in the row that is two rows above the current row.

The values in the first row of *compare-range* must be in ascending order. If *lookup-number* is smaller than the smallest value in the first row of *compare-range*, HLookup gives the error value

Error.

The VLookup function is identical to HLookup except that it searches the first column of *compare-range*, and moves left or right in that row by an amount specified by *index-number*.

Examples

If A1:E1 contains the values 10000, 20000, 30000, 40000, and 50000, and A5:E5 contains the values .01, .02, .03, .04, and .05, then:

HLookup(35000,A1:E1,5) *equals* .03

HLookup(35000,A1:E1,1) *equals* 30000

HLookup(5000,A1:E1,5) *equals* *Error*

HLookup(.035,A5:E5, - 3) *equals* 30000

If(number,number-if-true,number-if-false)

If

The If function gives *number-if-true* if *number* is non-zero (TRUE), and *number-if-false* if *number* is 0 (FALSE).

Example

Given that A5 contains the number 98, and B10 contains the number 90:

If(Or(A5<80,B10<75),1,0) *equals* 0

Index(range,row,column)

Index

The Index function gives the content of the indexed cell, selected by the indices *row* and *column* starting from the cell in the upper-left corner of *range*.

Examples

Index(B2:D4,2,3) *equals* the value of D3

Index(B2:D2,1,2) *equals* the value of C2

Index(B2:B4,2,1) *equals* the value of B3

Index(B2:D2,0,0) *equals* the value of A1

Index(C4:D4, - 1, - 1) *equals* the value of A2

If A1:A5 contains the numbers 10, 7, 9, 27, and 2, then:

Index(A1:A5,3,1)/3 *equals* 3

Int

Int(number)

The Int function gives the largest integer less than or equal to *number*.

Examples

Int(8.9) *equals* 8

Int(-8.9) *equals* -9

IRR

IRR(range,guess)

The IRR function gives the internal rate of return of a series of cash flows, represented by the numbers in *range*. The internal rate of return is the interest rate that gives the series of cash flows a net present value of zero.

Works uses an iterative technique to compute IRR, which can have more than one solution. If the successive results of IRR do not converge after 20 iterations, IRR gives the error value *Error*.

Range should be a reference that contains numbers. If *range* contains text or blank values, those values are ignored.

Guess specifies the starting value of the iteration. If IRR does not converge, try different values for *guess*. Usually, a starting value between 0 and 1 will yield a meaningful result.

Example

If you have an investment represented by the cash flows (\$5000), \$1000, \$1500, \$2000, (\$3000), \$2500, and \$5000, which are entered in A1:A7, then:

IRR(A1:A7,10%) *equals* 15.05%

IsBlank

IsBlank(values-1,values-2,...)

The IsBlank function can have any number of arguments. All arguments must be cell references. IsBlank gives the value 1 (TRUE) if all cell references in the list of arguments are blank or contain text. Otherwise, it gives the value 0 (FALSE).

IsError(value)

IsError

The IsError function gives the value 1 (TRUE) if *value* is the error value *Error*. Otherwise, it gives the value 0 (FALSE).

If you want to see if a range of cells contains any *Error* values, use the Sum function to sum the range. If any cells contain *Error*, the result of the Sum function will be *Error*.

Example

Given that A1 contains the formula =3/0:

If(IsError(A1),0,1) *equals* 0

IsNA(value)

IsNA

The IsNA function gives the value 1 (TRUE) if *value* is the error value N/A. Otherwise, it gives the value 0 (FALSE).

Example

Given that A1 contains the formula =NA():

If(IsNA(A1),0,1) *equals* 0

Ln(number)

Ln

The Ln function calculates the natural logarithm of *number*. Natural logarithms use the mathematical constant e, 2.7182818..., as a base.

Number must be positive.

Ln is the inverse of the Exp function, e raised to the power *number*.

Examples

Ln(2.7182818) *equals* 1

Ln(Exp(3)) *equals* 3

Ln(8)/Ln(2) *equals* 3 (the base 2 logarithm of 8)

Log10

Log10(number)

The Log10 function gives the base 10 logarithm of *number*.

Number must be positive.

Log10 is the inverse of base 10 exponentiation.

Examples

Log10(10) *equals* 1

Log10(1E5) *equals* 5

Log10(10⁵) *equals* 5

Log10(8)/Log10(2) *equals* 3 (the base 2 logarithm of 8)

Lookup

Lookup(lookup-number,compare-range,result-range)

The Lookup function searches *compare-range* for the largest value that is less than or equal to *lookup-number*. Lookup gives the corresponding value in *result-range*.

The values in *compare-range* must be in ascending order. If *lookup-number* is smaller than the smallest value in *compare-range*, Lookup gives the error value *Error*. *Compare-range* and *result-range* should have the same length. Each of these range arguments must be one-dimensional, but they need not both be in the same direction.

Examples

If A1:E1 contains the comparison values 10000, 20000, 30000, 40000, and 50000, and A4:E4 contains the values 10, 20, 30, 40, and 50, then:

Lookup(35000,A1:E1,A4:E4) *equals* 30

Lookup(5000,A1:E1,A4:E4) *equals* *Error*

Lookup(35000,A1:E1,A1:E1) *equals* 30000

Match(lookup-number,compare-range,type)

Match

The Match function gives the number of the comparison value in *compare-range* that matches *lookup-number*. If *lookup-number* matches the first comparison value, Match gives 1. If *lookup-number* matches the second comparison value, Match gives 2, and so on. If *lookup-number* does not match any of the comparison values, Match gives the error value *Error*. If *compare-range* contains multiple rows, Match searches from left to right, one row at a time; that is, it first searches the first row, then the second row, and so on.

The rules for matching the values are determined by *type*. If *type* is 1, *lookup-number* matches the largest comparison value that is less than or equal to *lookup-number*. If *lookup-number* is less than the smallest comparison value, then it does not match any of them. The comparison values should be in ascending order.

If *type* is -1, *lookup-number* matches the smallest comparison value that is greater than or equal to *lookup-number*. If *lookup-number* is greater than the largest comparison value, then it does not match any of them. The comparison values should be in descending order.

If *type* is 0, *lookup-number* matches the first comparison value that is equal to *lookup-number*. If *lookup-number* is not equal to any of the comparison values, then it does not match any of them. The comparison values can be in any order.

Examples

If A1:A5 contains the numbers 60, 70, 80, 90, and 100, then:

Match(75,A1:A5,1) equals 2

Match(55,A1:A5,1) equals *Error*

If A1:A5 contains the numbers 100, 90, 80, 70, and 60, then:

Match(75,A1:A5,-1) equals 3

Match(105,A1:A5,-1) equals *Error*

If A1:C3 contains the numbers:

10	20	30
40	50	60
70	80	90

then Match (40,A1:C3,0) equals 4

Max

Max(values-1,values-2,...)

The Max function gives the largest number in the list of arguments.

The arguments should be numbers, or references that contain numbers. If a reference argument contains text or blank values, those values are ignored.

Examples

If A1:A5 contains the numbers 10, 7, 9, 27, and 2, then:

Max(A1:A5) *equals* 27

Max(A1:A5,30) *equals* 30

Min

Min(values-1,values-2,...)

The Min function gives the smallest number in the list of arguments.

The arguments should be numbers, or references that contain numbers. If a reference argument contains text or blank values, those values are ignored.

Examples

If A1:A5 contains the numbers 10, 7, 9, 27, and 2, then:

Min(A1:A5) *equals* 2

Min(A1:A5,0) *equals* 0

MIRR

MIRR(range,safe,risk)

The MIRR function gives the modified internal rate of return of a series of cash flows, represented by the numbers in *range*, given *safe* and *risk*. *Safe* is the rate returned by the investment that will finance the negative cash flows. *Risk* is the rate at which the positive cash flows can be reinvested.

Range should be a reference that contains numbers. If *range* contains text or blank values, those values are ignored.

Where n is the number of cash flows in *range*, the formula used is:

$$\left(\frac{-NPV(risk, values[positive]) * (1 + risk)^n}{NPV(safe, values[negative]) * (1 + safe)} \right)^{\frac{1}{n-1}} - 1$$

Example

If you have an investment represented by the cash flows (\$5000), \$1000, \$1500, \$2000, (\$3000), \$2500, and \$5000, entered in A1:A7, and you hope to finance your negative cash flows with money borrowed at 12% and reinvest your positive cash flows at 17%, then:

MIRR(A1:A7,12%,17%) equals 15.19%

Mod(number,divisor-number)

Mod

The Mod function gives the remainder (modulus) after *number* is divided by *divisor-number*. The result has the same sign as *divisor-number*.

If *divisor-number* is 0, Mod gives the error value *Error*.

Examples

Mod(3,2) equals Mod(-3,2) equals 1

Mod(3,-2) equals Mod(-3,-2) equals -1

Mod(7,4) equals 7 - Int(7/4)*4 equals 3

NA()

NA

The NA function gives the error value N/A.

Examples

Given that A1 contains the formula =NA():

If(IsNA(A1),0,1) equals 0

Not

Not(number)

The Not function gives the value 0 (FALSE) if *number* is non-zero (TRUE), and gives 1 (TRUE) if *number* is 0 (FALSE).

Examples

Not(1 + 1 = 2) *equals* 0

Not(1 + 1 = 3) *equals* 1

NPer

NPer(rate,pmt,pv,fv,type)

The NPer function gives the number of periods of an investment involving constant cash flows.

If you omit either *fv* or *type*, it is assumed to be 0.

For a complete description of the arguments in NPer, see PV.

NPV

NPV(rate,values-1,values-2,...)

The NPV function gives the net present value of a series of future cash flows, represented by the numbers in the list of values, discounted at a constant interest rate specified by *rate*.

The cash flows are assumed to occur at equal time intervals, the first cash flow occurring at the end of the first period.

The list of values can contain one or more arguments. The *values* arguments should be numbers, or references that contain numbers. If a reference argument contains text or blank values, those values are ignored.

Or

Or(values-1,values-2,...)

The Or function gives the value 1 (TRUE) if any of the values in the list of arguments is non-zero (TRUE). If all of the values are 0 (FALSE), Or gives the value 0 (FALSE).

If a reference argument contains text or blank values, those values are ignored.

Examples

Or(1 + 1 = 2, 2 + 2 = 5) *equals* 1

Or(1 + 1 = 3, 2 + 2 = 5) *equals* 0

Pi()

Pi

The Pi function takes no argument and gives the number 3.14159..., an approximation of the mathematical constant π .

Example

ATan(1)*180/Pi() *equals* 45 (degrees)

Pmt(rate,nper,pv,fv,type)

Pmt

The Pmt function gives the periodic payment of an investment involving constant cash flows.

If you omit either *fv* or *type*, it is assumed to be 0.

For a complete description of the arguments in Pmt, see PV.

PV(rate,nper,pmt,fv,type)

FV(rate,nper,pmt,pv,type)

NPer(rate,pmt,pv,fv,type)

Pmt(rate,nper,pv,fv,type)

Rate(nper,pmt,pv,fv,type,guess)

PV

FV

NPer

Pmt

Rate

Present value (*pv*), future value (*fv*), number of periods (*nper*), periodic payment (*pmt*), and interest rate per period (*rate*) are the five standard parameters in cash flow problems involving constant payments. Each of the above functions gives the value of one of these financial arguments, given the values of the others.

For the arguments *pv*, *fv*, and *pmt*, use the following cash flow convention: cash received is represented by a positive number; cash paid out is represented by a negative number. The examples below illustrate this convention.

Rate and *nper* must refer to the same period. For example, if *nper* is the number of months, then *rate* must be the effective monthly interest rate.

Type indicates whether payments occur at the beginning or the end of the periods. If *type* is 0, the first payment is assumed to occur at the end of the first period; if *type* is 1, the first payment occurs at the beginning. If you omit *type*, it is assumed to be 0.

Works uses an iterative technique to compute *Rate*, which can have zero, one, or two solutions. If the successive results of *Rate* do not converge after 20 iterations, *Rate* gives the error value *Error*.

Guess specifies the starting value of the iteration. If you omit *guess*, it is assumed to be 0.1 or 10%. If *Rate* does not converge, try different values for *guess*. Usually, a starting value between 0 and 1 will yield a meaningful result.

All of the arguments must be numbers. In *PV*, *FV*, *NPer*, and *Pmt*, you can omit the last two arguments; in *Rate*, you can omit the last three arguments. Any argument (except *guess*, as noted above) that is omitted is assumed to be 0.

Works uses the following equations to solve for one financial argument in terms of the others:

$$pv * (1 + rate)^{nper} + pmt * (1 + rate * type) * \frac{(1 + rate)^{nper} - 1}{rate} + fv = 0$$

(for $rate \neq 0$)

$$pv + pmt * nper + fv = 0$$

(for $rate = 0$)

Examples

You have received a loan of \$12,000 at an interest rate of 9% (monthly rate of 0.75%), and you must pay it off in 24 monthly payments made at the end of each month. *Pv* is 12000, *rate* is 0.75%, *nper* is 24, and *fv* and *type* are 0. The monthly payment is calculated by:

$$\text{Pmt}(0.0075, 24, 12000) \text{ equals } -548.22$$

A limited partnership plans to buy an apartment building for \$750,000 with the expectation of selling the building for \$1,500,000 in 6 years. The rent from the apartments amounts to \$100,000 annually. *Pv* is -750000, *fv* is 1500000, *nper* is 6, *pmt* is 100000, and *type* is 0. The numbers \$100,000, \$750,000,

and \$1,500,000 are entered in cells A1, B2, and C3. If your guess at the annual rate of return is 10%, the actual annual rate of return is calculated by:

`Rate(6,A1,-B2,C3,0,0.1)` equals 22.73%

You now have \$1,000 in your savings account earning 6% annual interest (0.5% monthly interest), and you plan to deposit \$100 at the beginning of every month for the next 12 months. *Pv* is -1000, *rate* is 0.5%, *pmt* is -100, *nper* is 12, and *type* is 1, so the amount of money in your savings account at the end of 12 months is calculated by:

`FV(0.005,12,-100,-1000,1)` equals 2301.40

Radians(number)

Radians

The Radians function converts an angle in degrees to radians.

Example

`Radians(180)` equals 3.14159... (the value of π)

Rand()

Rand

The Rand function gives a random number in the range 0 to 0.999.... Rand generates a new random number every time the Spreadsheet document is recalculated.

Rate(nper,pmt,pv,fv,type,guess)

Rate

The Rate function gives the interest rate per period of an investment involving constant cash flows.

If you omit *fv* or *type*, it is assumed to be 0. If you omit *guess*, it is assumed to be 0.1 or 10%.

For a complete description of the arguments in Rate, see PV.

Round

Round(number,number-of-digits)

The Round function gives *number* rounded to *number-of-digits*. If *number-of-digits* is positive, *number* is rounded to that many decimal places. If *number-of-digits* is 0, *number* is rounded to the nearest integer. If *number-of-digits* is negative, *number* is rounded to the left of the decimal point.

Examples

Round(2.15,1) equals 2.2

Round(2.149,1) equals 2.1

Round(-1.475,2) equals -1.48

Round(891,-2) equals 900

Sign

Sign(number)

The Sign function gives 1 if *number* is positive, 0 if *number* is 0, and -1 if *number* is negative.

Examples

Sign(7+3) equals 1

Sign(4-4) equals 0

Sign(3-7) equals -1

Sin

Sin(number)

The Sin function gives the sine of *number*, where *number* is an angle in radians.

Examples

Sin(0) equals 0

Sin(Pi()/2) equals 1

Sin((3*Pi())/2) equals -1

Sqrt(number)

Sqrt

The Sqrt function gives the positive square root of *number*.

Number must be greater than or equal to 0. If *number* is negative, Sqrt gives the error value *Error*.

SSum(values-1,values-2,...)

SSum

The SSum function gives the sum of the numbers in the list of arguments as they are displayed on the screen. Arguments displayed in Fixed, Dollar, or Percent format are truncated to the value displayed on the screen.

If a reference argument contains text or blank values, those values are ignored.

This function is intended to guarantee that the sum of *values* displayed matches the screen exactly. In other words, it is the result you get by using a calculator to add all the values in the argument list as they are displayed on the screen.

Examples

If A1:A5 contains the numbers 10.2, 7.12, 9.0, 27.031 (displayed with two digits after the decimal point), and 2, then:

SSum(A1:A5) *equals* 55.35

Notice that the same formula using the Sum function gives a different result:

Sum(A1:A5) *equals* 55.351

StDev(values-1,values-2,...)

StDev

The StDev function gives the sample standard deviation of the numbers in the list of arguments.

The arguments should be numbers, or references that contain numbers. If a reference argument contains text or blank values, those values are ignored.

The formula used is:

Sqrt(Var(values-1,values-2,...))

The sample standard deviation is the best estimate of the population standard deviation based on a sample of the population. If your sample represents the entire population, you can compute the true population standard deviation by including the average of the sample in the list of arguments to StDev:

StDev(Population,Average(Population))

Examples

If A1:A5 contains the numbers 10, 7, 9, 27, and 2, then:

StDev(A1:A5) equals 9.460

StDev(A1:A5,Average(A1:A5)) equals 8.462

Sum

Sum(values-1,values-2,...)

The Sum function gives the sum of the numbers in the list of arguments.

The arguments should be numbers, or references that contain numbers. If a reference argument contains text or blank values, those values are ignored.

Examples

If A1:A5 contains the numbers 10, 7, 9, 27, and 2, then:

Sum(A1:A5) equals 55

Sum(A1:A5,5) equals 60

Tan

Tan(number)

The Tan function gives the tangent of *number*, where *number* is an angle in radians.

Examples

Tan(0.785) equals 0.999

*Tan(45*Pi()/180) equals 1*

True()**True**

The True function takes no arguments and gives the value 1 (TRUE).

Example

Choose(2,False(),True(),True(),False(),True()) *equals* 1

Type(value)**Type**

The Type function gives the type of *value*.

If *value* is a cell reference and the cell referenced is blank or contains text, Type gives 2.

Otherwise, Type gives 1 when *value* is a number, 8 when *value* is the error value N/A, and 16 when *value* is the error value *Error*.

Examples

If A1 contains the text "Smith", then:

Type(A1) *equals* 2

Type(5) *equals* 1

Type(1/0) *equals* 16

Var(values-1,values-2,...)**Var**

The Var function gives the sample variance of the numbers in the list of arguments.

The arguments should be numbers, or references that contain numbers. If a reference argument contains text or blank values, those values are ignored.

The formula used is:

$$\frac{n * (\sum(x^2)) - (\sum x)^2}{n * (n - 1)}$$

The sample variance is the best estimate of the population variance based on a sample of the population. If your sample represents the entire population, you can compute the true population variance by including the average of the sample in the list of arguments to Var:

Var(Population,Average(Population))

Examples

If A1:A5 contains the numbers 10, 7, 9, 27, and 2, then:

Var(A1:A5) equals 89.5

Var(A1:A5,Average(A1:A5)) equals 71.6

VLookup

VLookup(lookup-number,compare-range,index-number)

See Hlookup.

16 Spreadsheet Command Reference

The Apple, File, and Window menus are identical for all Microsoft Works tools. For information on these menus, see Chapter 2, "Common Tasks Command Reference."

This chapter discusses all the shaded commands shown below.

Edit	
Undo	⌘Z
Cut	⌘H
Copy	⌘C
Paste	⌘V
Clear	
Move...	
Paste with Options...	
Insert	⌘I
Paste Function...	
Absolute Cell Ref	⌘A
Fill Right	⌘R
Fill Down	⌘D
Sort...	

Select	
All Cells	
Last Cell	
Find Cell...	⌘F
Go To Cell...	⌘G
Show Active Cell	

Format	
✓General	
Fixed	
Dollar	
Percent	
Scientific	
Number of Decimals...	
Align Left	
Align Center	
Align Right	
✓Normal Text	⌘N
Bold	⌘B
<u>Underline</u>	⌘U
Commas	
✓No Commas	
Column Width...	

Options	
Calculate Now	⌘=
Manual Calculation	
✓Automatic Calculation	
Show Formulas	
✓Show Values	
Protected	
✓Not Protected	
Set Page Break	
Remove Page Break	
✓Show Grid	
No Grid	

Chart	
Draw Chart...	
New Series Chart...	
New Pie Chart...	
Select Definition...	
Duplicate Chart...	
Erase Chart...	

Edit	
Undo	⌘Z
Cut	⌘H
Copy	⌘C
Paste	⌘V
Clear	
Change Chart Name...	

You can invoke some Works commands from the keyboard, as well as by using the mouse. The available Command-key combinations are shown on the menus and in Appendix D.

An alphabetical list of commands appears in the index under "Command."

The Edit Menu

The first five commands on the Edit menu are common to all tools in Works. For information on these commands, see "The Edit Menu" in Chapter 2. For specific information on using the Copy and Paste commands in the Spreadsheet, see "Copying Cells" in Chapter 12.

This section explains additional Edit menu commands that are available in the Works Spreadsheet.

Move

Edit	
Undo	⌘Z
Cut	⌘H
Copy	⌘C
Paste	⌘U
Clear	
Move...	
Paste with Options...	
Insert	⌘I
Paste Function...	
Absolute Cell Ref	⌘A
Fill Right	⌘R
Fill Down	⌘D
Sort...	

Move

The Move command moves a selected cell or range of cells from one location to another in a Spreadsheet document.

Use Move to move information within a single Spreadsheet document. When you use Move, the relative cell references point to the same cell value that they pointed to before the move.

Note When you want to move information from one Spreadsheet document either to another Spreadsheet document or to another type of document, use the Cut and Paste commands.

Enter Destination Cell
for Move:

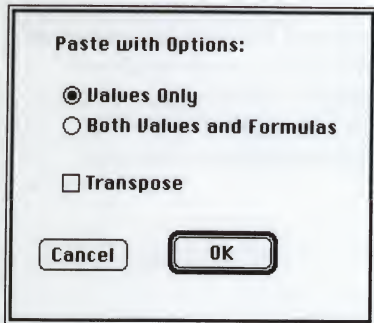
You can also move cells by holding down the Option
and ⌘ keys and clicking on the destination cell.

Type the reference of the destination cell in the text box.

Works moves the selection from its present location to the destination cell, beginning with the upper-left cell of the selection.

Paste with Options

The Paste with Options command pastes a Spreadsheet selection from the Clipboard to the same or another Spreadsheet document.



Use the Cut or Copy command to put your selection on the Clipboard, and select a cell to be the starting point of the paste. Then choose Paste with Options.

Values Only Click this option to paste only the formatted values in a selection.

Both Values and Formulas Click this option to paste the full content of the cells in a selection.

If you choose to paste both values and formulas, Works adjusts the relative cell references in the pasted cells according to their new location.

Transpose Click this option to paste rows into columns or columns into rows. The selection can contain multiple rows or columns.

Paste with Options

Edit	
Undo	⌘Z
Cut	⌘H
Copy	⌘C
Paste	⌘V
Clear	
Move...	
Paste with Options...	
Insert	⌘I
Paste Function...	
Absolute Cell Ref	⌘A
Fill Right	⌘R
Fill Down	⌘D
Sort...	

Insert

Edit	
Undo	⌘Z
Cut	⌘H
Copy	⌘C
Paste	⌘V
Clear	
Move...	
Paste with Options...	
Insert	
Paste Function...	
Absolute Cell Ref	⌘A
Fill Right	⌘R
Fill Down	⌘D
Sort...	

Insert

The Insert command inserts a blank row or column into a Spreadsheet document.

To insert a blank row or column, select a row or column and choose Insert. Works inserts a blank row at the selected row, and moves the selected row below the inserted row. Works inserts a blank column at the selected column and moves the selected column to the right of the inserted column. Works then increments by one all rows or columns after the inserted row or column, and adjusts all cell references according to the new row or column headings.

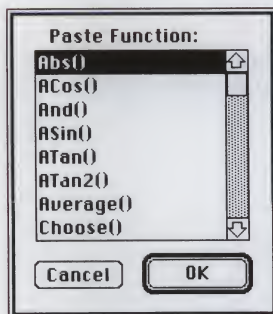
Paste Function

Edit	
Undo	⌘Z
Cut	⌘H
Copy	⌘C
Paste	⌘V
Clear	
Move...	
Paste with Options...	
Insert	⌘I
Paste Function...	
Absolute Cell Ref	⌘A
Fill Right	⌘R
Fill Down	⌘D
Sort...	

Paste Function

The Paste Function command inserts a function into a formula in the entry bar.

Select the cell to contain the formula, and click in the entry bar where you want to insert the function. Then choose Paste Function.



The list box contains a list of all available Works functions. To paste a function, select the function you want from the list, then click the OK button.

If the formula bar is inactive, Works activates it and pastes an equal sign (=), followed by the selected function. If the formula bar is active, Works pastes the function at the insertion point.

If you don't type an operator after the preceding operand, Works adds a plus sign (+) before the pasted function. Works also pastes the required parentheses, with the insertion point between them, so you can enter the function's arguments.

For information on specific functions, see Chapter 15, "Spreadsheet Functions."

Absolute Cell Ref

The Absolute Cell Ref command allows you to switch between a relative cell reference and an absolute cell reference.

Absolute cell references are indicated by a dollar sign (\$) preceding the reference to the column, to the row, or to both as in \$B\$4.

To change a reference or range reference in the entry bar, position the insertion point to the immediate right of the reference or select it, then choose Absolute Cell Ref. If the reference is absolute, Works changes it to relative by deleting the dollar signs. If the reference is relative, Works changes it to absolute by inserting dollar signs. If the reference is mixed, Works reverses each part of the reference.

Absolute Cell Ref

Edit	
Undo	⌘Z
Cut	⌘H
Copy	⌘C
Paste	⌘V
Clear	
Move...	
Paste with Options...	
Insert	⌘I
Paste Function...	
Absolute Cell Ref	⌘A
Fill Right	⌘R
Fill Down	⌘D
Sort...	

Fill Right/Fill Down

The Fill Right command copies the cells in the leftmost column of a selection into the remaining columns of the selection. The Fill Down command copies the cells in the top row of a selection into the remaining rows of the selection. If the cells in the remaining columns and rows are not empty, Works replaces the existing data in those cells.

When you choose Fill Right or Fill Down, Works adjusts relative cell references in formulas to reflect their new positions.

Fill Right Fill Down

Edit	
Undo	⌘Z
Cut	⌘H
Copy	⌘C
Paste	⌘V
Clear	
Move...	
Paste with Options...	
Insert	⌘I
Paste Function...	
Absolute Cell Ref	⌘A
Fill Right	⌘R
Fill Down	⌘D
Sort...	

Sort

Edit	
Undo	⌘Z
Cut	⌘H
Copy	⌘C
Paste	⌘V
Clear	
Move...	
Paste with Options...	
Insert	⌘I
Paste Function...	
Absolute Cell Ref	⌘A
Fill Right	⌘R
Fill Down	⌘D
Sort...	

Sort

The Sort command sorts the rows of a selection according to the contents of key columns within the selection.

You tell Works which rows to sort by selecting them. Then you specify which columns are the key columns, and whether to sort in ascending or descending order. You can specify up to three key columns.

Select Sort Keys:

1st Key Column ☒ Ascending ☐ Descending

2nd Key Column ☒ Ascending ☐ Descending

3rd Key Column ☒ Ascending ☐ Descending

Cancel OK

Columns Specify a key column by typing the column heading (letter) of the column you want Works to sort the selection on.

If there are duplicates in the key column, Works looks beyond the first key column to see if you have defined more than one key column. Specify second and third key columns by typing the headings of the columns in order of importance, with the most important key column first.

Next to each Key Column box, click Ascending or Descending to tell Works what order to sort in. In ascending order, Works sorts in this order: numbers, error values, text, blanks. In descending order, Works sorts in the following order: error values, numbers, text, blanks.

Numbers are sorted from the smallest negative value to the largest positive value. Text is sorted in the following order:

space ! " # \$ % & ' () * + , - . / 0 1 2 3 4 5 6 7 8 9 : ; <
 = > ? @ A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
 [\] ^ _ ` { | } ~ ¡ ¢ £ ¤ ¥ ¦ § ¨ © ª « ¬ ® ¯ ° ± ² ³ ´ µ ¶ · ¸
 ¹ º » ¼ ½ ¾ ¿ à á â ã ä å æ ç è é ê ë ì í î ï ð ñ ò ó ô õ ö ÷ ø ù

The numbers in the text sorting order refer to numbers that are typed in a Spreadsheet document as text values. Numbers that appear in a Spreadsheet document as numeric values are sorted separately.

Works ignores capitalization and accent marks when sorting text.

You can sort on more than three key columns by doing two sorts. When you do sorts based on more than three key columns, keep in mind the following:

- The most recent sort takes precedence.
- Works retains the previous sort order in places where the current sort produces equal items.

If you want Works to take into account more than three key columns, sort the data three key columns at a time, starting with the least important group of columns and progressing to the most important group, but listing the most important column first within each group.

For example, if you have five key columns you want to use to sort the rows of a selection, do one sort with the fourth and fifth most important columns selected as the first and second key columns. Then do a second sort with the three remaining columns, beginning with the most important column.

The Select Menu

All Cells

The All Cells command selects all the cells from A1 to the last cell. (The last cell is at the intersection of the last row and column that contain a value or formula.)

All Cells

Select	
All Cells	
Last Cell	
.....	
Find Cell...	⌘F
Go To Cell...	⌘G
.....	
Show Active Cell	

Last Cell

Select	
All Cells	
Last Cell	
.....	
Find Cell...	⌘F
Go To Cell...	⌘G
.....	
Show Active Cell	

Last Cell

The Last Cell command selects the cell at the intersection of the last row and column that contain a value or formula.

Find Cell

Select	
All Cells	
Last Cell	
.....	
Find Cell...	⌘F
Go To Cell...	⌘G
.....	
Show Active Cell	

Find Cell

The Find Cell command finds and selects either the specified cell or the cell containing the specified text.

Enter Cell to Select or
Text to Find:

Works proposes the cell or the text you last specified. You can either accept the proposed response or type a new one.

To find cells containing *Error* or N/A, type `=Error()` or `=NA()` in the text box. When you type a formula in the dialog box, Works calculates the formula, then looks for the cell containing the resulting value.

Click the Find Next button to have Works begin the search.

Go To Cell

Select	
All Cells	
Last Cell	
.....	
Find Cell...	⌘F
Go To Cell...	⌘G
.....	
Show Active Cell	

Go To Cell

The Go To Cell command finds a specified cell and displays it in the window. It does not select the cell.

Use Go To Cell when you are building a formula in the entry bar and want to see the contents of a particular cell. Because Works doesn't select the cell, it will not appear as a reference in your formula.



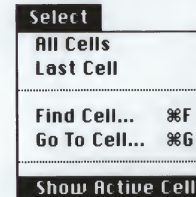
Works proposes the cell you last specified. You can either accept the proposed response or type a new one.

Click the OK button to have Works begin the search.

Show Active Cell

The Show Active Cell command scrolls the Spreadsheet document so that the active cell is visible. Use this command when you scroll the Spreadsheet document away from the active cell and want to return to it quickly.

Show Active Cell



The Format Menu

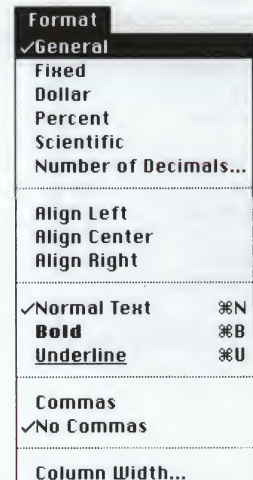
General

The General command displays numeric values as precisely as possible, given the width of the cell. Leading zeros are not displayed.

Initially, Works displays all values in a Spreadsheet document in General format. To change this, select one of the four commands that follow.

Note The Number of Decimals command does not affect cells with General format.

General



Fixed

Format	
General	
Fixed	
Dollar	
Percent	
Scientific	
Number of Decimals...	
Align Left	
Align Center	
Align Right	
Normal Text	%N
Bold	%B
<u>Underline</u>	%U
Commas	
No Commas	
Column Width...	

Fixed

The Fixed command displays values with a fixed number of places to the right of the decimal point.

Initially, the fixed number of places is two. You can change it with the Number of Decimals command.

Dollar

Format	
General	
Fixed	
Dollar	
Percent	
Scientific	
Number of Decimals...	
Align Left	
Align Center	
Align Right	
Normal Text	%N
Bold	%B
<u>Underline</u>	%U
Commas	
No Commas	
Column Width...	

Dollar

The Dollar command displays values in dollars and cents format, that is, with dollars to the left of the decimal point and either no digits or two digits representing cents to the right. A dollar sign (\$) appears to the immediate left of the most significant digit.

Negative numbers are enclosed in parentheses.

Choose Number of Decimals to display either whole dollars or dollars and cents. Type 0 to display whole dollars with no decimal point. Type 2 to display dollars and cents.

The value is adjusted to the nearest whole dollar or whole cent depending upon your choice of 0 or 2 decimals. For example, the value 9.505 is displayed as \$10 if you specify 0 decimal places; it is displayed as \$9.51 if you specify 2 decimal places.

Percent

The Percent command displays values as percentages.

The numeric value of a cell is multiplied by 100 and displayed with a percent sign (%) to its immediate right.

With the Number of Decimals command, you can specify the number of decimal places to be displayed in the percentage. The value .156, for example, is displayed as 15.6% if you set Number of Decimals to 1, or 16% if you set Number of Decimals to 0.

Percent

Format	
General	
Fixed	
Dollar	
Percent	
Scientific	
Number of Decimals...	
Align Left	
Align Center	
Align Right	
Normal Text	%N
Bold	%B
<u>Underline</u>	%U
Commas	
No Commas	
Column Width...	

Scientific

The Scientific command allows you to express very large or very small numbers.

Scientific notation consists of three parts: a decimal number in the form *n.nn*, the exponentiation symbol E or e, and an integer in the form $\pm ii$ for the exponent. With the Number of Decimals command, you can specify the number of decimal places to be displayed in the decimal number.

For example, the value 1,210 is displayed as 1.21E+03, where 1.21 is the decimal number, E is the exponentiation symbol, and +03 is the exponent. The value .00121 is displayed as 1.21E-03.

Scientific

Format	
General	
Fixed	
Dollar	
Percent	
Scientific	
Number of Decimals...	
Align Left	
Align Center	
Align Right	
Normal Text	%N
Bold	%B
<u>Underline</u>	%U
Commas	
No Commas	
Column Width...	

Number of Decimals

Format	
<input checked="" type="checkbox"/> General	
<input type="checkbox"/> Fixed	
<input type="checkbox"/> Dollar	
<input type="checkbox"/> Percent	
<input type="checkbox"/> Scientific	
Number of Decimals...	
Align Left	
Align Center	
Align Right	
<input checked="" type="checkbox"/> Normal Text	%N
Bold	%B
<u>Underline</u>	%U
Commas	
<input checked="" type="checkbox"/> No Commas	
Column Width...	

Number of Decimals

The Number of Decimals command tells Works how many digits to display to the right of the decimal point when you specify Fixed, Dollar, Percent, or Scientific format.

Enter Number of Decimal Places from 0 to 15:	<input type="text" value="2"/>
<input type="button" value="Cancel"/>	<input type="button" value="OK"/>

In the text box, type the number of decimals, from 0 to 15, you want displayed. For more information, see "Fixed," "Dollar," "Percent," and "Scientific," above.

Align Left Align Center Align Right

Format	
<input checked="" type="checkbox"/> General	
<input type="checkbox"/> Fixed	
<input type="checkbox"/> Dollar	
<input type="checkbox"/> Percent	
<input type="checkbox"/> Scientific	
Number of Decimals...	
Align Left	
Align Center	
Align Right	
<input checked="" type="checkbox"/> Normal Text	%N
Bold	%B
<u>Underline</u>	%U
Commas	
<input checked="" type="checkbox"/> No Commas	
Column Width...	

Align Left/Align Center/Align Right

These commands align the contents of selected cells.

The Align Left command aligns the cell content to the leftmost position in the cell.

The Align Center command centers the cell content in the cell.

The Align Right command aligns the cell content to the rightmost position in the cell.

Normal Text/Bold/Underline

These commands change the type style of values in selected cells.

Values can be either plain or bold, underlined or not.

The Underline command underlines the entire cell.

Normal Text Bold Underline

Format	
<input checked="" type="checkbox"/> General	
Fixed	
Dollar	
Percent	
Scientific	
Number of Decimals...	
Align Left	
Align Center	
Align Right	
<input checked="" type="checkbox"/> Normal Text	%N
Bold	%B
<u>Underline</u>	%U
Commas	
<input checked="" type="checkbox"/> No Commas	
Column Width...	

Commas/No Commas

These commands tell Works whether or not to display commas in numeric values.

When you select a cell or a range of cells and choose Commas, Works displays a comma between each group of three digits to the left of the decimal point.

Commas No Commas

Format	
<input checked="" type="checkbox"/> General	
Fixed	
Dollar	
Percent	
Scientific	
Number of Decimals...	
Align Left	
Align Center	
Align Right	
<input checked="" type="checkbox"/> Normal Text	%N
Bold	%B
<u>Underline</u>	%U
Commas	
<input checked="" type="checkbox"/> No Commas	
Column Width...	

Column Width

Format	
<input checked="" type="checkbox"/> General	
Fixed	
Dollar	
Percent	
Scientific	
Number of Decimals...	
Align Left	
Align Center	
Align Right	
<input checked="" type="checkbox"/> Normal Text	⌘N
Bold	⌘B
<u>Underline</u>	⌘U
<input checked="" type="checkbox"/> Commas	
No Commas	
Column Width...	

Column Width

The Column Width command sets the width of selected columns. You don't have to select an entire column. If you select any cell in a column, the new column width applies to all cells in that column. To adjust all of the columns in a Spreadsheet document, select an entire row by clicking a row heading.

Enter Column Width
from 1 to 40

12

You can also change column width by clicking and dragging the column divider bars.

Cancel OK

In the text box, you can either accept the proposed response or type a new number. The standard column width is twelve spaces.

To change the width of a column with the mouse, point to one of the lines that divide the column headings. When the pointer becomes a two-way arrow, drag to the left or right.

The Options Menu

Calculate Now Manual Calculation

Options	
Calculate Now	⌘=
Manual Calculation	
<input checked="" type="checkbox"/> Automatic Calculation	
Show Formulas	
<input checked="" type="checkbox"/> Show Values	
Protected	
<input checked="" type="checkbox"/> Not Protected	
Set Page Break	
Remove Page Break	
<input checked="" type="checkbox"/> Show Grid	
No Grid	

Calculate Now/Manual Calculation

The Calculate Now command allows you to recalculate a Spreadsheet document. The Manual Calculation command tells Works to recalculate a Spreadsheet document only when you choose Calculate Now.

You don't need to choose Calculate Now when calculation is automatic, because in that case, whenever you make a change, Works automatically recalculates dependent formulas in all open Spreadsheet documents and charts.

Automatic Calculation

When you create a new Spreadsheet document, Automatic Calculation is checked. This command tells Works to recalculate the Spreadsheet document whenever you change the content of a cell. Since calculation is done in the background, and doesn't interfere with your work, you'll probably want to have this command in effect most of the time.

Automatic Calculation

Options	
Calculate Now	⌘=
Manual Calculation	
<input checked="" type="checkbox"/> Automatic Calculation	
Show Formulas	
<input checked="" type="checkbox"/> Show Values	
Protected	
Not Protected	
Set Page Break	
Remove Page Break	
<input checked="" type="checkbox"/> Show Grid	
No Grid	

Show Formulas/Show Values

These commands tell Works to display or print either the formatted value or the unformatted content of cells.

These commands affect all cells in a Spreadsheet document.

If you choose Show Formulas, Works places the formulas on the Clipboard when you cut or copy cells, or prints the formulas when you print a range of cells.

If you choose Show Values, Works places the formatted values on the Clipboard when you cut or copy cells, or prints the formatted values when you print a range of cells.

Show Formulas Show Values

Options	
Calculate Now	⌘=
Manual Calculation	
<input checked="" type="checkbox"/> Automatic Calculation	
Show Formulas	
<input checked="" type="checkbox"/> Show Values	
Protected	
<input checked="" type="checkbox"/> Not Protected	
Set Page Break	
Remove Page Break	
<input checked="" type="checkbox"/> Show Grid	
No Grid	

Protected Not Protected

Options

Calculate Now	%=
Manual Calculation	
<input checked="" type="checkbox"/> Automatic Calculation	
<hr/>	
<input checked="" type="checkbox"/> Show Formulas	
Show Values	
<hr/>	
Protected	
<input checked="" type="checkbox"/> Not Protected	
<hr/>	
Set Page Break	
Remove Page Break	
<hr/>	
<input checked="" type="checkbox"/> Show Grid	
No Grid	

Set Page Break Remove Page Break

Options

Calculate Now	%=
Manual Calculation	
<input checked="" type="checkbox"/> Automatic Calculation	
<hr/>	
<input checked="" type="checkbox"/> Show Formulas	
Show Values	
<hr/>	
<input checked="" type="checkbox"/> Protected	
Not Protected	
<hr/>	
Set Page Break	
Remove Page Break	
<hr/>	
<input checked="" type="checkbox"/> Show Grid	
No Grid	

Protected/Not Protected

These commands set and remove cell protection for selected cells.

The Protected command protects a cell or range of cells from accidental loss or change. The Not Protected command removes this protection.

When you choose Protected, Works won't allow you to enter numbers, formulas, or labels. If you try, Works displays an alert box telling you to remove cell protection before entering your data.

Set Page Break/Remove Page Break

These commands set and remove manual page breaks for a printed Spreadsheet document.

Works automatically determines where pages break, based on column widths and the margin settings you enter with the Page Setup command from the File menu. You can manually insert page breaks, however, in places other than where pages would automatically break.

To set a manual page break, select the cell you want to be in the upper-left corner of the page, then choose Set Page Break. Works inserts vertical and horizontal dashed lines (page break indicators) to mark the manual page break, then repaginates the rest of the document.

To remove a manual page break, select a cell immediately to the right of a vertical break or below a horizontal break, then choose Remove Page Break. Works removes the page break indicator and automatically repaginates the rest of the document. To remove both a vertical and a horizontal page break indicator at once, select the cell in the upper-left corner of the page before choosing Remove Page Break.

Show Grid/No Grid

These commands tell Works whether or not to display and print grid lines on your Spreadsheet document.

Choose Show Grid to display and print grid lines. Choose No Grid to display and print without grid lines. The active command is checked on the menu.

Show Grid No Grid

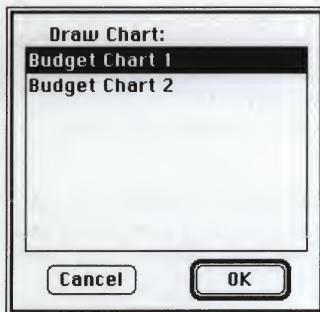
Options

Calculate Now	⌘=
Manual Calculation	
✓Automatic Calculation	
<hr/>	
✓Show Formulas	
Show Values	
<hr/>	
✓Protected	
Not Protected	
<hr/>	
Set Page Break	
Remove Page Break	
<hr/>	
✓Show Grid	
No Grid	

The Chart Menu

Draw Chart

The Draw Chart command draws a chart that you have already defined with either the New Series Chart or New Pie Chart command.



To draw a chart, select the chart you want, then click the OK button. Works draws the chart and makes the chart window the active window.

Draw Chart

Chart

Draw Chart...
New Series Chart...
New Pie Chart...
Select Definition...
Duplicate Chart...
Erase Chart...

New Series Chart

Chart

Draw Chart...
 New Series Chart...
 New Pie Chart...
 Select Definition...
 Duplicate Chart...
 Erase Chart...

New Series Chart

The New Series Chart command defines a new series chart. Use a series chart when you want to compare different sets of data. You can plot up to four rows at once. You can define up to eight chart definitions for each Spreadsheet document. If New Series Chart is dimmed on the menu, you need to remove a chart definition with the Erase Chart command before you can create a new one.

Untitled Chart 1

Type of Chart: ☒ LINE ☐ BAR ☐ STACK ☐ COMBO

Values to be Plotted:
 1st Row: 3
 2nd Row: 4
 3rd Row:
 4th Row:
 From Column: B
 To Column: M

Vertical Scale:
☒ Numeric
☐ Semi-Logarithmic
 Maximum:
 Minimum: 0

Data Legends in Column: A ☒ Draw Grid
Horizontal Titles in Row: 1 ☒ Label Chart

Chart Title: Untitled
Vertical Scale Title: Untitled
Horizontal Scale Title: Untitled

Cancel Plot It!

The name of the chart definition (not the chart title) is displayed in the title bar. You can leave the name as is or rename the definition to something more meaningful to you. To change the name, use the Change Chart Name command from the Edit menu. For more information, see "Change Chart Name" at the end of this chapter.

Since you may need to refer to the Spreadsheet document to set the chart parameters, you can move this dialog box just like a regular window. Drag the title bar to move the box and see the information you need.

After you set up the chart definition, you have three choices:

- Click the Plot It! button to plot the chart and to store the definition with your Spreadsheet document.
- Click the close box to store the definition with your Spreadsheet document and to make the Spreadsheet document the active window.
- Click the Cancel button to return to the Spreadsheet document and discard the definition.

When you save your Spreadsheet document, chart definitions are also saved and are available when you later open the Spreadsheet document.

Type of Chart Click the type you want.

Line	For analyzing trends.
Bar	For making comparisons.
Stack	For analyzing cumulative effects.
Combo	For seeing both trends and comparisons.

Values to be Plotted

1st Row Type the row heading (a number) of the first of the four rows of values you want to plot. Works proposes row 3, assuming row 1 contains a title for your Spreadsheet document and row 2 contains column labels.

2nd Row Type the row heading of the second row of values you want to plot. Works proposes row 4. If you want to plot only one row of values, press the Backspace key to erase the 4 and leave the box blank.

3rd Row Type the row heading of the third row of values you want to plot.

4th Row Type the row heading of the fourth row of values you want to plot.

From Column Type the column heading (a letter) of the first column of values you want to plot. Works proposes column B.

To Column Type the column heading of the last column of values you want to plot. Works proposes column M.

Data Legends in Column Type the heading of the column containing the data legends (the labels that describe the rows you are plotting). Works proposes column A.

Horizontal Titles in Row Type the heading of the row containing the horizontal titles (the labels that describe the columns you are plotting). Works proposes row 1.

Chart Title Type a title to appear on the chart. If you type nothing here, Works will put no title on the chart.

Vertical Scale Title Type a label for the vertical scale, such as *Units*, *Dollars*, or *Millions of Dollars*. If you type nothing here, Works will put no vertical scale title on the chart.

Horizontal Scale Title Type a label for the horizontal scale. If you type nothing here, Works will put no horizontal scale title on the chart.

Vertical Scale

Numeric Click this box to scale the data numerically. This is initially checked.

Semi-Logarithmic Click this box to scale the data logarithmically. The vertical scale on the chart is logarithmic. Works automatically computes the number of cycles based on the range of values in the rows you are plotting.

Maximum Type the maximum value you want to plot. If you leave this box blank, Works plots all values in the specified rows, and divides the vertical scale based on the largest plotted value.

Minimum Type the minimum value you want to plot. Works proposes 0. If you leave this unchanged, Works plots all values in the specified rows and begins the vertical scale with 0.

New Pie Chart

Chart

- Draw Chart...
- New Series Chart...
- New Pie Chart...**
- Select Definition...
- Duplicate Chart...
- Erase Chart...

New Pie Chart

The New Pie Chart command defines a new pie chart. Use a pie chart when you want to compare individual parts of a whole. If New Pie Chart is dimmed on the menu, you need to remove a chart definition with the Erase Chart command before you can create a new one.

Untitled Chart 3

Pie Chart Definition:

Chart Title:

Plot Values in Column:

From Row:

Through Row:

Column of Value Titles:

The name of the chart definition (not the chart title) is displayed in the title bar. You can leave the name as is or rename the definition to something more meaningful to you. To change the name, use the Change Chart Name command from the Edit menu. For more information, see "Change Chart Name" at the end of this chapter.

Since you may need to refer to the Spreadsheet document to set the chart parameters, you can move this dialog box just like a regular window. Drag the title bar to see the information you need.

After you set up the chart definition, you have three choices:

- Click the Plot It! button to plot the chart and to store the definition with your Spreadsheet document.
- Click the close box to store the definition with your Spreadsheet document and to make the Spreadsheet document the active window.
- Click the Cancel button to return to the Spreadsheet document and discard the definition.

When you save your Spreadsheet document, chart definitions are also saved and are available when you later open the Spreadsheet document.

Chart Title Type a title to appear on the chart. If you type nothing here, Works will put no title on the chart.

Plot Values in Column Type the heading (a letter) of the column of values you want to plot. Works proposes column B.

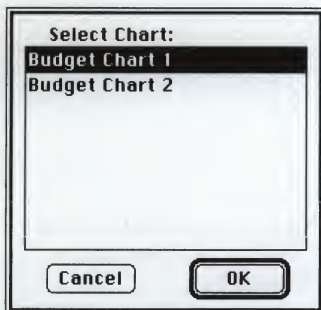
From Row Type the heading (a number) of the first row containing values you want to plot. Works proposes row 3.

Through Row Type the heading of the last row containing values you want to plot. Works proposes row 7.

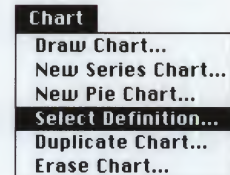
Column of Value Titles Type the heading of the column containing the titles of the values you want to plot. Works proposes column A.

Select Definition

The Select Definition command allows you to change or verify an existing chart definition before plotting the chart.



Select Definition



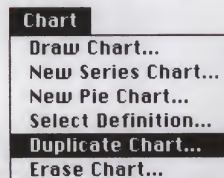
Select the chart definition you want to change or verify, then click the OK button. Works displays the definition in the appropriate definition dialog box.

After you change whatever specifications need to be changed, you have three choices:

- Click the Plot It! button to plot the new chart. This button also replaces the original chart definition with the modified one and stores it with the Spreadsheet document.
- Click the close box to store the modified definition with your Spreadsheet document without plotting the chart and to make the Spreadsheet document the active window.
- Click the Cancel button to return to the Spreadsheet document and discard any changes you made to the definition.

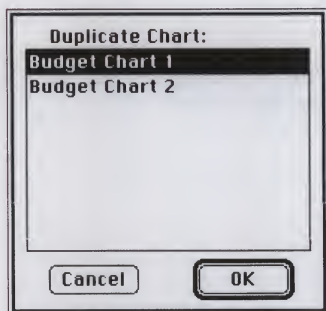
When you save your Spreadsheet document, the modified chart definition is saved and will be available when you later open the Spreadsheet document.

Duplicate Chart



Duplicate Chart

The Duplicate Chart command duplicates an existing chart definition. If Duplicate Chart is dimmed on the menu, you need to remove a chart definition with the Erase Chart command before you can duplicate one.



Select the chart definition you want to duplicate, then click the OK button. Works displays the definition with a proposed new name in the appropriate chart definition dialog box.

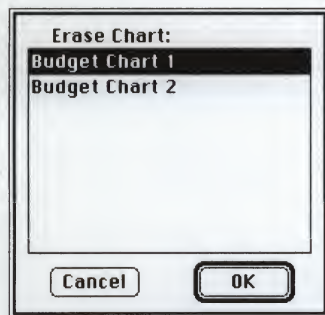
After you change whatever specifications need to be changed, you have three choices.

- Click the Plot It! button to plot the chart and store the new definition with your Spreadsheet document.
- Click the close box to store the new definition with your Spreadsheet document and to make the Spreadsheet document the active window.
- Click the Cancel button to return to the Spreadsheet document and discard the new definition.

When you save your Spreadsheet document, the new definition is saved with it and will be available when you later open the Spreadsheet document.

Erase Chart

The Erase Chart command erases a chart definition stored with a Spreadsheet document.



Choose the chart definition you want to erase.

Works removes the chart definition from the list of definitions stored with the Spreadsheet document.

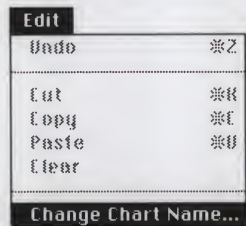
Erase Chart

Chart

- Draw Chart...
- New Series Chart...
- New Pie Chart...
- Select Definition...
- Duplicate Chart...
- Erase Chart...

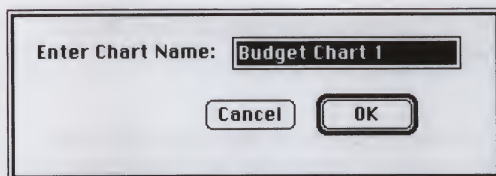
The Edit Menu

Change Chart Name



Change Chart Name

The Change Chart Name command changes the name of a chart definition.



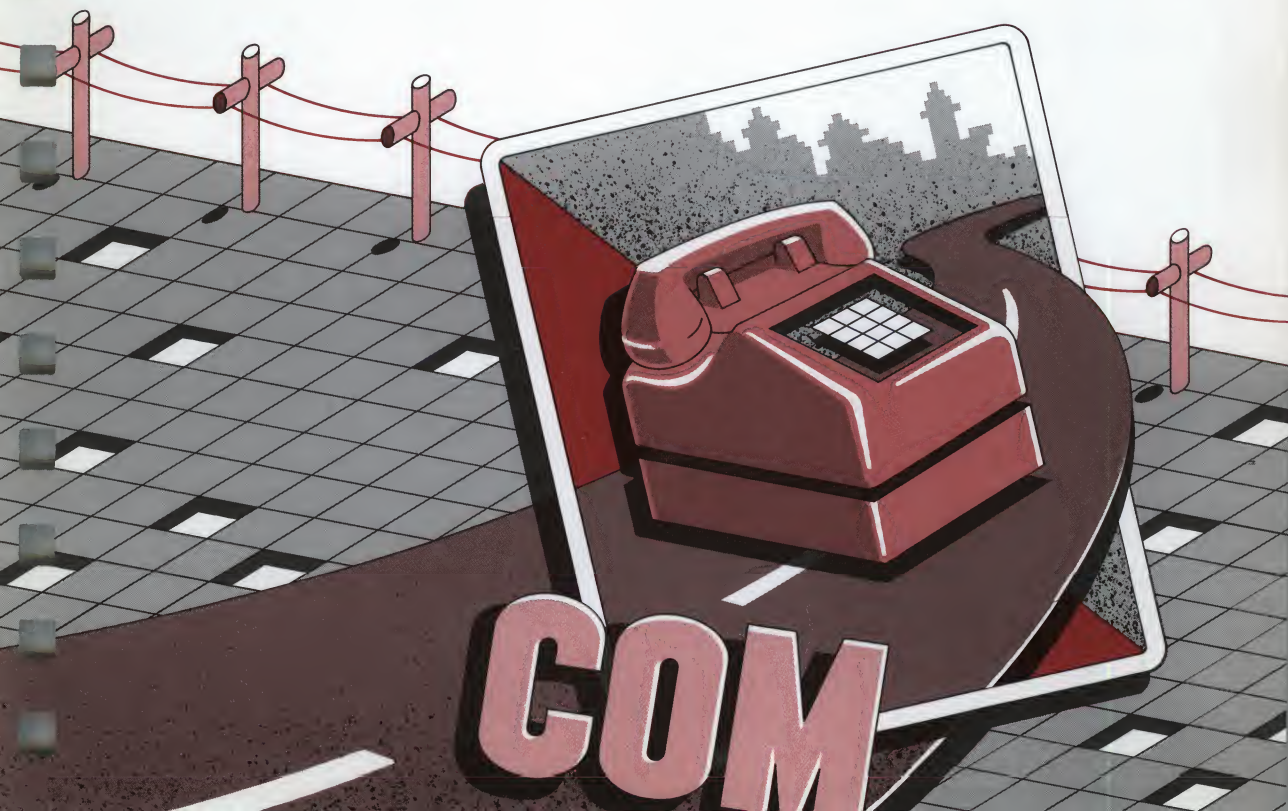
Type the new name and click the OK button.

The new name also appears in the title bar of the chart window and in the dialog boxes that contain a list of chart names.

This command is available only when a chart definition dialog box is the active window.

Communications

Works Communications opens up a world of opportunities for you. Using Communications, you can talk with computers just about everywhere. You can browse through files on computer libraries, send and receive information, or make financial transactions.



The chapters in this part of the manual explain how to use Works Communications.

- Chapter 17, "Specifying Settings and Calling a Computer," shows how data communications works, how to match the way your computer communicates with the way other computers communicate, and how to store telephone numbers and have Works dial them automatically.
- Chapter 18, "Sending and Receiving Information," explains how you can send and receive both messages and information, such as a Spreadsheet document that a spreadsheet program on another computer can use.
- Chapter 19, "Communications Command Reference," describes the Communications commands.

17 Specifying Settings and Calling a Computer

To use Works Communications, you need to make sure that the Works settings match those of the computer you're calling. Information services, like Dow Jones or CompuServe, and other accessible computers will provide you with the necessary information. Then, you need to put the phone numbers of the services into your Works phone book so you can get in touch with them.

In this chapter, you'll learn how to:

- Understand how data communications works.
- Specify settings.
- Use the Works phone book.
- Dial another computer and respond when the connection is made.
- Adjust the echo.
- Hang up the phone.
- Prepare to answer calls.
- Call an information service or personal computer.

An Overview

This section gives an overview of how data communications works, and explains the terms you'll use in Works Communications.

Connecting Computers

Data communications travel over telephone lines or through cables.

Usually you'll send messages over the telephone. To do that, you need a modem or an acoustic coupler — devices that convert digital signals into voice-frequency signals that can travel over the telephone. A modem (modulator-demodulator) modulates electrical impulses into telephone signals when you send messages.

The modem connection

When you receive messages, it demodulates, or translates the telephone signals back into electrical signals your computer can understand. An acoustic coupler receives sound signals through a standard telephone receiver, rather than electrical signals over cables. An acoustic coupler is more vulnerable to noise and static than a modem, and more suitable for low-speed transmissions.

The cable connection

You can also send information directly from computer to computer using a cable. Your computer dealer can show you how. When two computers are directly connected, you'll be able to send information faster than you usually can over the telephone line, but only over short distances (among offices in a building, for example).

Speed of Transmission

Baud rate

Your Macintosh sends information through a modem in tones that represent zeros and ones. These zeros and ones are binary digits, or bits. Each bit is only a fraction of a single letter, and hundreds of them go out every second. The rate of speed at which the bits are sent is the baud rate. You set the baud rate to tell Works how fast to send out information. Because of static and other random noises in the telephone lines, messages you send over the telephone travel at relatively slow speeds—but still much faster than you can type. If you lease direct lines or use a satellite, you can send messages at very high rates of speed.

How Information Travels

To make sure that your message gets through accurately, communications programs at both ends have to send and receive information the same way. When you subscribe to a computer service or plan to connect with another computer, somebody at the other end tells you in advance what settings to choose.

Character settings

In addition to setting the speed of transmission, you specify three characteristics about the characters that make up your message. When you send a message, it goes out in pulses of sound or electricity. The data size tells the receiving computer how many pulses make up one character. Stop bits tell when one character ends and another begins. Parity is a method the computer uses to check for errors in the data transmission.

Unless both computers send and receive information using the same settings, they won't understand each other—like two people talking to each other in different languages.

Greetings

Just as diplomats follow a specified ritual when they greet each other, so do computers. The handshake setting tells one computer how the other computer will send and receive information.

The handshake is a form of protocol — computer diplomacy. Not all computers use the same protocol, but most information services and personal computer communications programs use the protocols that Works provides.

Handshake setting

Creating a New Communications Document

For each computer that you intend to call, you can create a new document to contain the appropriate settings. Each computer you call may use different settings.

To create a new Communications document:

- 1 In the Open dialog box, click the Communications icon.
- 2 Click the New button.

To create a new Communications document

Works displays the Settings dialog box. Whenever you create a new Communications document, the Settings dialog box is automatically displayed. You can have only one Communications document open at a time.

Communications Settings:

Baud Rate: ☐ 300 ☒ 1200 ☐ 2400 ☐ 4800 ☐ 9600 ☐ 19200

Data Size: ☒ 8 Bits ☐ 7 Bits



Stop Bits: ☒ 1 Bit ☐ 2 Bits

Parity: ☒ None ☐ Odd ☐ Even

Handshake: ☐ None ☒ Hon/Hoff ☐ Both ☐ Hardware

Phone Type: ☒ Touch-Tone® ☐ Rotary Dial

Line Delay: **Character Delay:**

Connect To: ☒  ☐ 

Specifying Settings

When you first create a new Communications document, the preset options are those normally used by information services.

To specify settings:

- 1** Click the appropriate settings, and type the line or character delay, if any.
- 2** Click the OK button or press the Return key.

Works stores the settings with the Communications document, and saves them when you save the document.

For a complete description of the Settings options, see “Settings” in Chapter 19.

To change the settings at any time:

- Choose the Settings command from the Communications menu, and repeat steps 1 and 2 of the procedure described above.

Adding or Changing Numbers in the Phone Book

Each Communications document has its own phone book stored with it, which contains up to eight phone numbers. The phone book also stores a name for each number, so that you'll know which computer you're dialing. The phone book is empty until you put numbers into it.

To add a number to the phone book:

- 1** Choose Dial from the Communications menu.
The phone book appears, with the insertion point in the first blank Name box.

To specify settings

To change settings

To add a number to the phone book

Type the name here. Type the number here.

Name:	Phone Number:
<input type="button" value="Dial"/> <input type="text"/>	<input type="text"/>
<input type="button" value="Dial"/> <input type="text"/>	<input type="text"/>
<input type="button" value="Dial"/> <input type="text"/>	<input type="text"/>
<input type="button" value="Dial"/> <input type="text"/>	<input type="text"/>
<input type="button" value="Dial"/> <input type="text"/>	<input type="text"/>
<input type="button" value="Dial"/> <input type="text"/>	<input type="text"/>
<input type="button" value="Dial"/> <input type="text"/>	<input type="text"/>
<input type="button" value="Dial"/> <input type="text"/>	<input type="text"/>

2 Type a name.

3 Press the Tab key to move the insertion point into the number box, and type a phone number.

A number can be up to 50 digits long. Be sure to include all the digits you'd normally dial if you were making the call yourself—any long distance access codes or internal accounting codes, for example.

If you have a Hayes or Hayes-compatible modem, you can insert commas for pauses and hyphens for easier reading. If, for example, you must dial 9 for an outside line, you can type 9, 111-0000 so Works will pause after it dials 9.

If you have a different kind of modem, see your modem documentation for information on commas and hyphens.

4 Click the OK button or press the Return key.

Works stores the new name and number with the Communications document.

To change or remove a name or number:

1 Choose Dial from the Communications menu.

2 Select the name or number by dragging across it.

3 Press the Backspace key to remove the selected name or number, or type the correction to change or replace the selected name or number.

4 Click the OK button or press the Return key.

Works stores the change with the Communications document.

**To change or remove
a name or number**

Dialing a Phone Number

Before dialing, make sure your modem is connected to the Macintosh and to a telephone wall outlet.

If you have a Hayes or Hayes-compatible modem, you can use the Dial command to send the appropriate command to the modem to tell it to dial the number. For other modems, you must send the dialing command as well as the phone number.

To dial a number with a Hayes-compatible modem

To dial a phone number (Hayes or compatible modem):

- ☐ 1 Choose Dial from the Communications menu.
- ☐ 2 Click the Dial button next to the number you want.

Works dials the number for you and displays the message "Dialing..." to tell you that the modem is dialing. When you are connected, Works displays the message "CONNECTED".

To dial a number with a different modem

To dial a phone number (non-Hayes-compatible):

- ☐ Type the dialing command for your modem in the Communications document window.
Refer to your modem documentation for information on dialing commands.
or
- ☐ If you have an acoustic coupler, dial the number, then place the telephone receiver in the headset.

To respond when a connection is made

Once you're connected, respond to the prompts of the service you've dialed, or if you're calling another personal computer, type something like "Hello" to let the other person know you're connected.

Getting an Echo

Some computers send back each character they receive, so that you see two of each character on your screen. This is called an echo. If you're seeing two of each character when you connect with another computer, turn the echo off. If you're not seeing any characters as you type, turn the echo on.

To adjust the echo:

- Choose Echo On or Echo Off from the Communications menu. The command in effect has a checkmark on the menu.

Echo On is often called "full duplex" and Echo Off "half duplex."

To adjust the echo

Hanging Up

Hanging up with Works Communications is just as easy as hanging up a telephone. After you've finished your session with an information service or another computer operator, you're ready to hang up. Remember that hanging up does not necessarily log you off from the system you were connected with, so it is a good practice to log off before you hang up.

To hang up:

- Choose Hang Up from the Communications menu. Works displays the messages "Hanging up...", "+ + +", and "NO CARRIER".

The last two messages indicate that the connection has been broken. You can then close or save the document.

The carrier is the signal that carries your message over the phone lines. Periodically something will go wrong with a transmission. If you are disconnected in the middle of a session, Works displays the message, "NO CARRIER...". The message means that you've been disconnected. You can quit or try again.

To hang up

Preparing to Answer a Call

To answer a call

When you're expecting a call from another user, you need to get ready.

- 1** Create a new Communications document, or open an existing Communications file.
- 2** Confirm that the settings in the Settings dialog box are correct.

Then, to set your Hayes-compatible modem to auto-answer:

- ☒ Choose the Answer Phone command from the Communications menu.

This tells your modem to answer the telephone when it rings. When the Answer Phone command is in effect, it is checked on the menu.

When you finish your Communications session and break the connection with the other user, you may want to change the setting on your modem.

To set the modem so that it won't answer the telephone:

- ☐ Choose the checked Answer Phone command.

Works removes the checkmark from the menu.

If your modem is not Hayes-compatible, consult your modem documentation, and type the appropriate command in the Communications document window.

Completing a Connection

Once you're connected to another computer, what do you do? It depends on the kind of computer you're calling. This section explains briefly about information services and other personal computers.

Calling an Information Service

Information services, like Dow Jones or CompuServe, have more information than many reference libraries. Although they all work differently, this section shows you some of their similarities, so you'll know what to expect when you call one.

To call an information service:

1 Dial the service.

When you connect, the service will probably ask for an identification code and a password. (Your service provides this information when you subscribe.)

2 Type your identification code and password.

Now you're logged on to the service. The time from when you log on to when you log off is your session. The service should guide you with prompts through the session. By answering questions and choosing from menus, you should be able to find what you're looking for.

Some information services have a system operator whom you can ask for help if you have difficulties.

Because many information services charge you for the time you are connected, Works Communications provides some commands that let you save time when you send and receive information. For more information, see Chapter 18, "Sending and Receiving Information."

3 When you're finished, log off and hang up.

Note Commercial information services, such as CompuServe, The Source, and Delphi, may require that you transmit control characters to utilize some functions of the service. To transmit a control character in Works, hold down the Option key and press whatever character key you need. For example, to transmit Control-C, hold down the Option key and press the C key.

For Works Communications documents:

- Option-3 corresponds to Break
- Option-Backspace corresponds to Delete
- Option-[corresponds to Escape

To call an information service

To call a personal computer**Calling a Personal Computer**

Personal computers from different manufacturers can communicate with each other through programs like Works Communications. Using the telephone lines with Communications, you can send messages and documents to acquaintances who have personal computers.

To call a personal computer:

- 1** Make sure your settings in the Settings dialog box match those of the receiving computer's program.
- 2** Dial the number.
- 3** When Works says "CONNECTED", begin typing.

Once you're connected, you can type messages and send and receive information.

Saving a Communications Document

When you save a Communications document, Works automatically stores the settings along with it. You might want to name the document after the information service or person you called. When you want to dial that service or personal computer again, you can open this file and dial, and the settings will be in place.

Note Information that appears in the Communications window, which is used for interaction between the modem and the computer you connect to, is not stored with the Communications document.

18 Sending and Receiving Information

Sometimes you'll want to interact with another computer by sending or receiving messages. This type of information is called text. When you're using an information service, you usually send and receive text. What you see on the screen while you're using Communications is text.

At other times you'll want to send files, like Spreadsheet documents, for someone else to look at, or you'll want to get a copy of an application program available on an information service. A file can be either a file created with an application, or an application program itself that you send or receive. You can't read the particular file that you're sending or receiving while the transmission is in progress. You can, however, use other Works tools at this time.

This chapter shows you how to:

- Send both text and files.
- Receive both text and files.

If you want to gain access to a bulletin board or information service, see "Sending Text" and "Capturing and Saving Text" in this chapter. If you plan to send or receive an application program or application file, see "Sending a File" and "Receiving and Saving a File" in this chapter.

Sending Information

Works Communications gives you two ways to send information:

- As text: You can type the information in the Word Processor, save it, and send it out with Communications as text. This is especially useful for sending messages through electronic mail. Communications will send the information much faster than you could type it, so you can save on long-distance bills.

Ways to send information

- As a file: If you send a file to another Macintosh, or to other types of computers, the recipient will be able to save the file and then open it later with the appropriate tool or program.

Information sent as text is meant to be read and used during the course of communicating with the other computer. Information sent as a file is meant to be used later, with another tool or application.

Sending Text

Text is whatever you type with the keyboard. Everything you type with the Word Processor, for example, is text. The formatting in a Word Processor document is not text, however. Nearly every computer reads plain (normal) text the same way, which makes it possible for you to send text to other computers. When you call up an information service, you type text to tell it who you are and what you want to do.

To send text as you type it

To send text as you type it:

- 1 Connect with the receiving computer.
- 2 Start typing.

That's it! Once you connect with another computer, you can start typing. Most information services or bulletin boards will prompt you for commands, guiding you through a session. If you're connecting with another personal computer, you can just type messages as though you were talking.

To send blocks of text

You don't have to type everything you send while you're sending it. With the Send Text command, you can send large amounts of text faster than you can type. First, you save information in the Word Processor. Then you send that document with the Send Text command just as though you were typing it. Since much of the expense of using an information service depends on how long you're connected, you can save money by sending large amounts of text from a document, rather than by typing them as you send them.

To send blocks of text:

- 1 Connect with the receiving computer.
- 2 Make sure the disk containing the Word Processor file is in the disk drive.

- 3 Choose Send Text from the Communications menu.
Works displays a dialog box listing files to choose from.
- 4 Select a file from the list.
- 5 Click the Send button.

The information zips across the screen as Works sends it.

Sending a File

Works Communications lets you send complete files, as well as text. The receiver of a file can save it and use it, just as though you had sent a copy of the file on a disk. You can send formatted Word Processor files containing different fonts or type sizes; or Database files that can be sorted and analyzed; or Spreadsheet files with formulas that work, so that they can be recalculated.

To send a file:

- 1 Connect with the receiving computer.
- 2 Choose Send File from the Communications menu.
Works displays a dialog box listing files to choose from.
- 3 Select a file from the list.
- 4 Click a protocol option.
For a complete description of the available options, see "Receive File" in Chapter 19.
- 5 Click the Send button.

Works sends the file and tells you when the transmission is complete. The recipient can save the file for later use.

To send a file

Receiving Information

As soon as you connect with another computer, you can receive whatever someone sends from the other end. The information goes into the memory of your Macintosh — but it's stored there only until you turn the computer off.

With Works Communications, you can save the information you receive for review by using the Capture Text command, and you can save files for later use with the Receive File command.

To capture and save text for review**Capturing and Saving Text**

When you want to reduce the amount of time you're connected to an information service or on the phone, you can save everything you type or receive as a Word Processor document. Then after you hang up the phone, you can review the entire session at your leisure. You'll be able to scroll back and forth through the text so that you can examine anything that went by too fast or was confusing.

You can start saving text at any time while you're connected. For example, if you call an information service to find out the average housing costs in Indianapolis, but have to look through a lot of extra material before you find what you want, you can wait until you're ready before saving anything.

To capture and save text:

- 1** Connect with another computer.
- 2** Whenever you're ready to start saving text, choose Capture Text from the Communications menu.

Works displays a dialog box in which you can name the document that will hold the text.

- 3** Type a name for the document.
- 4** Click the Capture button.

Works saves everything that you type or receive from the other computer. You will see text appear on your screen as it is received.

To stop saving text

You can stop saving text at any time:

- ☐ Choose End Text Capture from the Communications menu.

Works stops saving text, but you continue to receive the information on your screen.

To receive a file and save it on a disk**Receiving and Saving a File**

Information services often have whole files or application programs that you can transfer for storage on a disk. For example, you might want to transfer a new stock analysis application program so that you can examine your portfolio. Or a friend with a personal computer might want to send you a copy of a new game (if it's in the public domain).

Works Communications can take such information and save it in a file on a disk. If it is an application program, it must go onto a disk before you can use it. If it is a file, you may only be able to use it with a particular application. Such information is useful only if you store it on a disk.

Before you can receive a file, you have to make sure that your computer and the other computer are using the same language, or protocol.

To receive and save a file:

- 1 Connect with another computer.
- 2 When you know you're about to receive a file, choose Receive File from the Communications menu.
(The information service or computer operator at the other end should tell you to get ready to receive the file.)
Works displays a dialog box in which you can name a file to be received and choose a protocol.
- 3 Type a name for the file.
- 4 Click a protocol option.
For an explanation of the available options, see "Receive File" in Chapter 19.
- 5 Make sure the correct disk is in the disk drive.
- 6 Click the Receive button.

As the file comes in, Works saves it with the name you've chosen and tells you when the transmission is complete. If you receive a Macintosh application program, you can open it like any other application. If you receive a file, you'll be able to open it with the appropriate application.

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DEPARTMENT OF MATHEMATICS
CHICAGO, ILLINOIS 60637

RECEIVED: [illegible]

BY [illegible]

ON [illegible]

OF [illegible]

AND [illegible]

AND [illegible]

AND [illegible]

19 Communications Command Reference

The Apple, File, and Window menus are identical for all Microsoft Works tools. For information on these menus, see Chapter 2, "Common Tasks Command Reference."

This chapter discusses the shaded commands shown below:

Edit	
Undo	⌘Z
Cut	⌘H
Copy	⌘C
Paste	⌘V
Clear	
Select All	

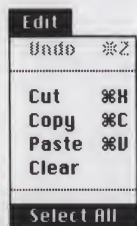
Communications	
✓Echo On	
Echo Off	
Dial...	
Hang Up	
Answer Phone	
Capture Text...	
Send Text...	
Receive File...	
Send File...	
Settings...	

An alphabetical list of commands appears in the index under "Command."

The Edit Menu

For information on the first five commands on the Edit menu see "The Edit Menu" in Chapter 2.

Select All

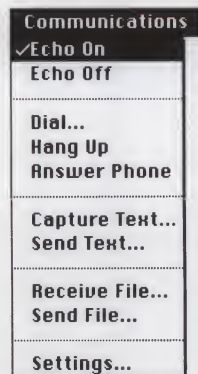


Select All

The Select All command selects an entire document.

The Communications Menu

Echo On Echo Off



Echo On/Echo Off

These commands control whether or not Works echoes characters on your screen.

Many computers send the characters they receive back to the sending terminal, which then displays these characters a second time. As you type, it looks as if you are typing the characters twice. If you are seeing two of each character, choose Echo Off. If you are not seeing any characters, choose Echo On.

Dial

The Dial command allows you to record names and telephone numbers. The Dial command also dials the numbers automatically when you have a Hayes-compatible modem.

Name:		Phone Number:
<input type="button" value="Dial"/>	<input type="text"/>	<input type="text"/>
<input type="button" value="Dial"/>	<input type="text"/>	<input type="text"/>
<input type="button" value="Dial"/>	<input type="text"/>	<input type="text"/>
<input type="button" value="Dial"/>	<input type="text"/>	<input type="text"/>
<input type="button" value="Dial"/>	<input type="text"/>	<input type="text"/>
<input type="button" value="Dial"/>	<input type="text"/>	<input type="text"/>
<input type="button" value="Dial"/>	<input type="text"/>	<input type="text"/>
<input type="button" value="Dial"/>	<input type="text"/>	<input type="text"/>

You can record up to eight names and telephone numbers in the text boxes. Type the numbers for the services or other computers you dial most frequently. With a Hayes-compatible modem, you can type a comma for a pause so Works will pause after dialing a number, such as 9 for an outside line, and hyphens so you can read your phone number more easily. (Consult your modem or telephone system documentation for any dialing codes you may have to include.)

Click the OK button to store the names and numbers with your Communications document. When you save this document, Works also saves these names and numbers.

To dial a number with a Hayes-compatible modem, click the Dial button to the left of the name and number you want.

Without a Hayes-compatible modem, you won't be able to use the Dial command. In the Communications window, type the dial commands specified for your modem.

After dialing, you should see the following sequence on your screen:

Dialing...
CONNECT

Dial

Communications	
<input checked="" type="checkbox"/>	Echo On
<input type="checkbox"/>	Echo Off
<hr/>	
Dial...	
Hang Up	
Answer Phone	
<hr/>	
Capture Text...	
Send Text...	
<hr/>	
Receive File...	
Send File...	
<hr/>	
Settings...	

If you are communicating with another Macintosh or other personal computer, either you or the other party can start typing as soon as the connection is made.

If you are communicating with an information service, such as CompuServe, The Source, or Dow Jones, follow the instructions in the service's manual.

Hang Up



Hang Up

The Hang Up command ends a Communications session and disconnects the modem from the telephone line.

Answer Phone



Answer Phone

The Answer Phone command tells Works to have the modem answer all incoming calls on the first ring.

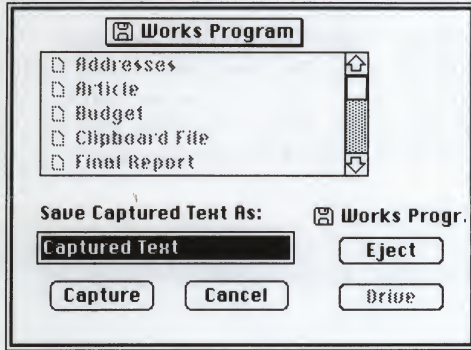
Without a Hayes-compatible modem, you won't be able to use the Answer Phone command. In the Communications window, type the appropriate commands specified for your modem.

Answer Phone is not initially checked on the Communications menu. When you choose it, Works puts a checkmark on the menu. The command is in effect when it is checked on the menu.

To tell Works not to answer any incoming calls, choose Answer Phone when it is checked. Works removes the checkmark.

Capture Text/End Text Capture

The Capture Text command saves everything you receive while connected to another computer.

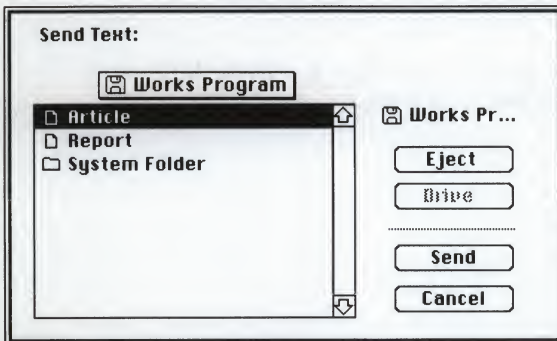


Use the Eject and Drive buttons to choose the disk on which you want to save. When you click the Capture button, Works begins to save everything displayed on your screen in the specified Works Word Processor file.

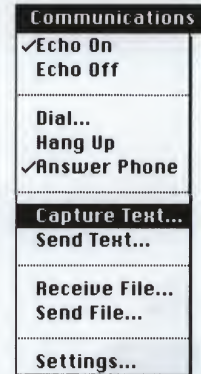
After you choose Capture Text, the command on the menu changes to End Text Capture. When you want to stop capturing text, choose End Text Capture.

Send Text

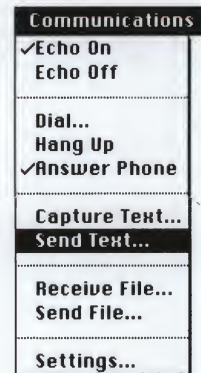
The Send Text command sends a specified Works Word Processor file to the receiving computer.



Capture Text End Text Capture



Send Text

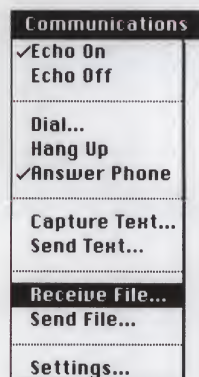


To send the text, select the file you want to send, then click the Send button.

When you send a previously saved Word Processor file, only the text is sent, not the formatting information. To send a text file not created in Works, you must first import it to the Word Processor and then save it.

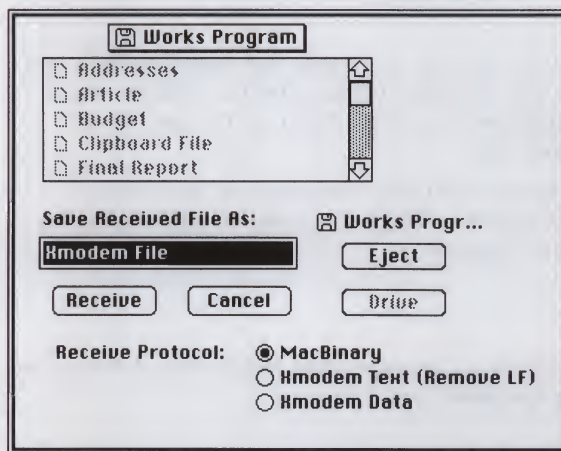
Send Text is useful when you are using Works to prepare and send electronic mail. For example, you can compose a letter with the Word Processor and save it. Then, make the connection to your electronic mail service. When the service instructs you to type your letter, choose Send Text to send it to the service.

Receive File



Receive File

The Receive File command receives formatted files or program files from another computer.



Type a name for the file. Use the Eject and Drive buttons to choose the disk on which you want to save the file.

Receive Protocol The protocol you use must match the protocol used by the other computer. There are three options to choose from:

- Click the MacBinary option to receive a file in the MacBinary format from another Macintosh or from another computer whose software supports the MacBinary format.
- Click the Xmodem Text option to receive a file from a computer other than a Macintosh or from a computer whose software does not support the MacBinary format. Use this option to receive text files — files containing only alphanumeric characters and no formatting information.
- Click the Xmodem Data option to receive a file from a computer other than a Macintosh or any computer whose software does not support the MacBinary format. Use this option to receive files containing both alphanumeric characters and formatting information.

With all of the above protocols, both computers will check for errors in transmission using the Xmodem protocol. If an error occurs, Works tells you.

As your computer receives a file, Works displays a message box telling you the status of the transmission and alerting you when transmission is complete.

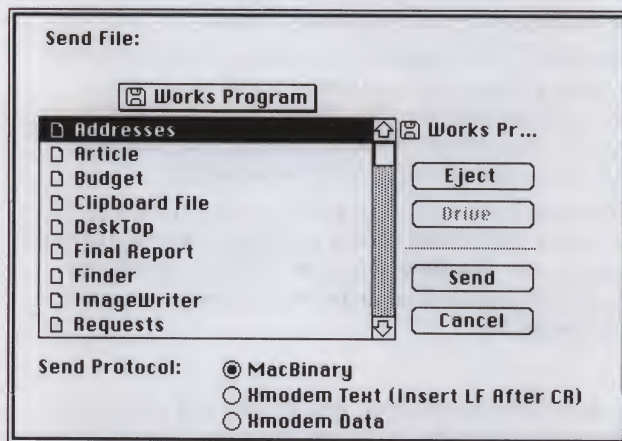
Note If you are receiving a file sent by another user running Microsoft Works, you do not need to use the Receive File command. Works Communications will automatically receive a file when it is sent using MacBinary protocol. The file will be saved on the current disk with the filename used by the sender. If you already have a file of that name saved on your disk, Works will automatically append a digit to the name.

Send File



Send File

The Send File command sends a formatted Macintosh data file or Macintosh program file.



The Send Protocol options are the same as those in the Receive File command. For more information, see "Receive File" in this chapter.

Select the file you want to send, then click the Send button. Works displays a message box telling you the status of the transfer and alerting you when transmission is complete.

Settings



Settings

The Settings command gives Works the parameters to use for communications.

When you choose Settings, Works displays a dialog box identifying the Macintosh, modem, and phone system parameters that must be specified.

This dialog box is also displayed when you create a new Communications document. This allows you to initialize the parameters before you create a document.

Communications Settings:

Baud Rate: ☐ 300 ☒ 1200 ☐ 2400 ☐ 4800 ☐ 9600 ☐ 19200

Data Size: ☒ 8 Bits ☐ 7 Bits



Stop Bits: ☒ 1 Bit ☐ 2 Bits

Parity: ☒ None ☐ Odd ☐ Even

Handshake: ☐ None ☒ Hon/Hoff ☐ Both ☐ Hardware

Phone Type: ☒ Touch-Tone ☐ Rotary Dial

Line Delay: **Character Delay:**

Connect To: ☒  ☐ 

The preset options are suitable for communicating with most commercial services and with other Macintosh computers equipped with modems manufactured by Apple Computer, Inc., Hayes Computer Products, Inc., and Prometheus Products, Inc. If the service, computer, or modem that you want to communicate with requires different settings, change the settings by clicking the appropriate options.

When you save a Communications document, Works saves the settings with the document.

If you regularly use a service requiring settings other than those proposed, you should create a new Communications document and change the necessary parameters in the Settings dialog box. Name and save the document with the Save As command from the File menu. When you want to use the service, open the file. Your parameters will be properly set.

Baud Rate Baud rate is a measure of the speed of data transmission. It is roughly the same as the number of bits per second. Each letter or numeric digit is comprised of 8 bits. Thus, 300 baud is approximately 30 characters per second. Most modems used over the switched telephone network operate at 300, 1200, or 2400 baud. You need to know the baud rate at which your modem operates and then set this parameter by clicking the appropriate option. Works proposes 1200 baud.

Data Size While data is represented internally in your Macintosh as 8 bits per character, it can be transmitted in either 8-bit or 7-bit segments. Most commercial services transmit 8-bit characters, so Works proposes 8 bits. You don't have to change this setting unless the system you are communicating with can receive data only in 7-bit segments.

Stop Bits Most commercial services use one stop bit to identify the end of the transmission of a single character, so Works proposes 1. You don't have to change this setting unless the other computer can transmit only two stop bits.

Parity Parity describes the bit, if there is one, added to transmitted characters for error checking. (After the receiving computer or terminal uses the parity bit to check for transmission errors, the bit is automatically removed from the characters.) Most commercial services use no parity, so Works proposes None. If necessary, change this by clicking the appropriate option.

Handshake Handshake refers to the way terminals or computers being used as terminals tell each other whose turn it is to send or receive data. It is normally used when transmitting data at very high rates of speed to synchronize the sending and receiving systems.

Handshaking, if used, is done by either hardware or software. Most commercial services support Xon/Xoff handshaking, so Works proposes Xon/Xoff. If you are communicating at 2400 baud or greater, or intend to use the Capture Text command, use Xon/Off.

Phone Type The telephone system uses two kinds of dialing:

- Rotary Dial
- Touch-Tone

Your modem uses different codes to dial automatically. Works needs to know which dialing method you're using. Works proposes Touch-Tone. If your telephone system is rotary dial, change the setting by clicking the Rotary Dial option.

Line Delay/Character Delay When transferring files over communications facilities, it is sometimes impossible to establish handshaking between the two systems. If the transmitting system sends data as fast as it can, and if the receiving computer cannot keep up with the sender, data can be lost. Most of the time you can prevent this if you slow down the transmitting computer by delaying between characters or between lines as they are sent.

Enter an amount of time to delay, by changing either Line Delay or Character Delay from the proposed setting of 0. The delay you specify is in increments of 1/60 of a second. For example, if you type 3, the delay will be 3/60 of a second.

Connect To Click the option that corresponds to the Macintosh port to which your modem is attached. Works proposes the telephone port. It is strongly recommended that you connect your modem to this port. (This may not be practical, however, if you use the telephone port for connecting a hard disk.)

When all the parameters are set, click the OK button.

Using the Tools Together

Microsoft Works is more than four separate tools. While each tool helps you in one area of your work, the tools can also work together to perform additional tasks they can't perform alone.

The Word Processor is ideal for writing, and with information from the Database you can also use it to make business forms, customized letters, and mailing labels. You can copy Communications information and Database figures to the Spreadsheet, and you can include Spreadsheet figures and Communications information in Database documents. You can also copy Communications and Spreadsheet information, including charts, to the Word Processor. Then you can use the Word Processor's special type styles and other features to make the information more attractive.



This part of the manual explains how to use the Works tools together:

- Chapter 20, "Moving Information Between the Tools," tells you how to move information and pictures between the four Works tools. It also explains how to move charts from the Spreadsheet and other graphics programs into the Word Processor. You'll also see how to add text, lines, and shapes to enhance your integrated documents.
- Chapter 21, "Merging: Creating Mailing Labels, Form Letters, and Forms," shows you how to use the Database to create form letters and mailing labels, to address envelopes, and to fill in forms you create in the Word Processor.

For information on using Works with other programs, see Appendix B, "Using Works with Other Applications."

For information on the specific tools in Works, see the appropriate parts of this manual.

20 Moving Information Between the Tools

This chapter explains how to move information between the Works tools. You'll learn how to:

- Copy information to the Word Processor.
- Copy information from other application programs to the Word Processor.
- Copy Word Processor information to the Database or Spreadsheet.
- Copy Database information to the Spreadsheet.
- Copy Spreadsheet information to the Database.
- Copy Communications information.
- Add finishing touches and edit pictures.

The Word Processor is the most convenient tool for integrating information. The Word Processor's drawing and formatting capabilities give you the most flexibility for combining information from the various tools.

You'll often want to include information from a Database, Spreadsheet, or Communications document in a Word Processor document. For example, a business report might require inventory information from a Database document, sales projections from a Spreadsheet document, and travel information or stock quotes from a Communications document.

To learn how to work with the information once you move it, you should turn to the appropriate chapters in this manual for each tool. Before you try the procedures in this chapter, you should already know how to select information within each tool.

About memory usage

Copying information between tools is subject to available memory, particularly if you are copying large selections. When you copy information to the Clipboard, you increase memory usage by the amount you copy. When you paste the Clipboard's contents, you paste a copy of the Clipboard's contents, increasing memory usage again by the same amount. If the Clipboard's contents are large, you may not have enough memory to paste. If Works displays an alert box, try copying your information in smaller sections.

Copying Information Between Tools

Copying information between the Works tools is easy. Just open the documents you need; the rest is as simple as pointing and clicking. Select the information, copy it to the Clipboard, and paste it at its destination.

You can copy information from open documents only. Depending on document size and available memory, you can have up to ten document windows open at a time. This makes integrating your information that much easier.

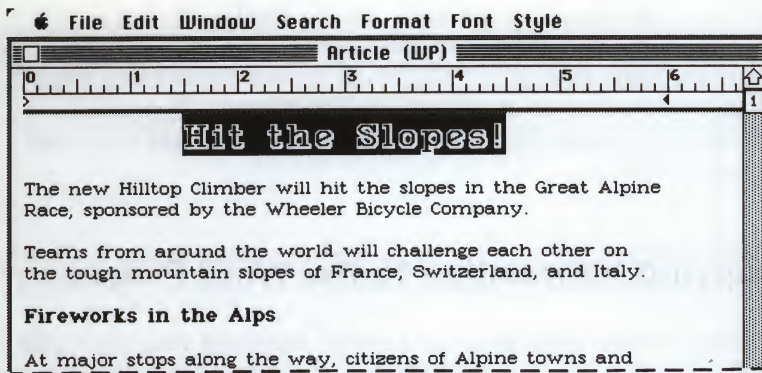
Note The procedures in this chapter discuss moving information in terms of copying from one tool or program to another. You can also move information by cutting it out of a tool or program. This process works exactly the same as copying, except that the information is deleted from the original document. If this is the result you want, substitute the Cut command for the Copy command in any of these procedures.

To copy information between the tools

This section explains the general procedure you'll follow to copy information between the tools. The sections that follow contain specific information for particular situations.

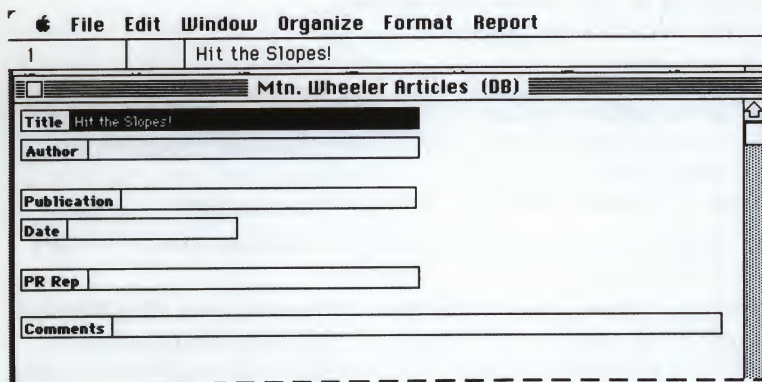
To copy information between the tools:

- 1** Make sure that the file you want to copy from is open.
- 2** Activate the document you want to copy from by choosing its name from the Window menu.
Works brings the document to the front and displays the scroll and title bars to show you that the window is active.
- 3** Select the information you want to copy.



- 4 Choose Copy from the Edit menu.
- 5 Open the file you want to paste into.
- 6 To copy into the Word Processor, position the insertion point in a blank line or select the text that you want to paste over. (Scroll if necessary.) If you select text, Works replaces it with the contents of the Clipboard.
To copy into the Database or Spreadsheet, select the entry or cell at the upper-left corner of the area you want to paste into. You can also select a range of entries or cells as the paste area.
- 7 Choose Paste from the Edit menu.

Works pastes the copied information.



As long as the information remains on the Clipboard, you can paste the information as many times as you want. For example, to use the same chart at the beginning of each section of a document, you can copy it once from the Spreadsheet, then scroll through your document, pasting a copy of it each time you come to a new section.

Copying Information to the Word Processor

When you select information to copy to the Word Processor, you need to consider how it will look in a Word Processor document. Your selection may be longer than a single page, or wider than a standard page. Works divides selections longer than a page into page-sized pieces for the Word Processor. If Database records or Spreadsheet rows are wider than a Word Processor page, you can format your information to fit after you paste it in.

Copying Between Word Processor Documents

You can copy information from one Word Processor document to another. Just use the general procedure described above. Notice that if you position the insertion point in a blank line, Works automatically opens up enough space to paste the entire contents of the Clipboard. Remember that you can copy text and pictures together if you drag from one end of the text to the other end, enclosing an entire picture in the process.

Copying a Spreadsheet Chart to the Word Processor

You can copy a Spreadsheet chart into the Word Processor. (You will not be able to choose Cut when a chart window is active.) Then, you can use the Word Processor's drawing capability to draw lines, boxes, and circles to accent the chart, and you can add text to provide labels or additional information.

You cannot edit or format text that was originally part of a chart after it is copied to the Word Processor.

Before you copy a chart to the Word Processor, you should insert enough blank space for the chart, and the surrounding white space that gets copied with it, by inserting return characters. Otherwise, the chart will be pasted over existing text.

To copy between Word Processor documents

To copy a chart to the Word Processor

Note If you do paste the chart over text, you'll see the chart overlaid on the text. Position the insertion point at the beginning of the first line of the covered text, and press Return repeatedly until the text scrolls out from under the chart. Or, you can move the chart. For more information, see "Editing Pictures" later in this chapter.

If you want to indent the chart from the left margin, press the Tab key or spacebar to position the insertion point where you want it. Works pastes the chart below and to the right of the insertion point.

Once the chart is pasted into the Word Processor, you can treat the chart as a picture. For more information, see "Editing Pictures" later in this chapter.

Copying Spreadsheet Information to the Word Processor

When you copy Spreadsheet information to the Word Processor, each column arrives separated by a tab character. Each row ends with a return character. If the rows are wider than the Word Processor page, paste the information first, then select and format it to fit. Spreadsheet information is always pasted in Geneva 9, but you can change the font and type size once the information is in the Word Processor.

When you copy Spreadsheet numbers or formulas to the Word Processor, Works pastes them as text. The relationship between the cells in the Spreadsheet no longer exists. For example, if you change a number in a column copied to the Word Processor, the total for that column will not change. You need to select the total as text and change it by using the standard Macintosh editing techniques.

You may want to adjust tab stops to change the appearance of the columns. For more information, see "Setting and Using Tabs" in Chapter 4.

Copying Database Information to the Word Processor

When you copy records from the Database, each field arrives separated by a tab character. Each record follows on its own line, ending with a return character. Records that are wider than the Word Processor page can be selected and formatted to fit after you paste. Database information is always pasted in Geneva 9, but you can change the font or type size once the information is in the Word Processor.

To copy Spreadsheet information to the Word Processor

To copy Database information to the Word Processor

When you copy Database information, Works normally copies field names as well as the selection. To copy only the selection, without the field names, hold down the Option key while you choose the Paste command.

When you copy Database numbers or the results of a calculated field to the Word Processor, Works pastes them as text, and you won't be able to recalculate them. If you want to adjust any numbers, select them as text and use the standard Macintosh editing techniques.

You should copy from a list window, because in the form window you can copy only one field at a time. In the list window, you can copy a field, a record, or a range of adjacent records, entries, or fields.

Copying from Other Applications to the Word Processor

To copy information from other applications

You copy information from other Macintosh applications in one of two ways:

- To copy small amounts of information, use the Clipboard or Scrapbook. For more information, see "Using the Scrapbook and Clipboard" in Appendix B.
- To copy large amounts of information or an entire document, use the Import File option in the Open dialog box. For more information, see Appendix B, "Using Works with Other Applications."

Copying Pictures and Graphics to the Word Processor

To copy pictures to the Word Processor

You can copy pictures created with any Macintosh drawing application, such as MacPaint or MacDraw, by using the Clipboard or Scrapbook. For more information, see your Macintosh owner's guide.

Copying Information to the Database or the Spreadsheet

Works copies information to the Database and Spreadsheet in the same way. Each entry or cell content ends with a tab character to indicate the end of a field or column, and each record or row ends with a return character. This section explains how to copy information to these tools, using spaces, tab characters, and/or

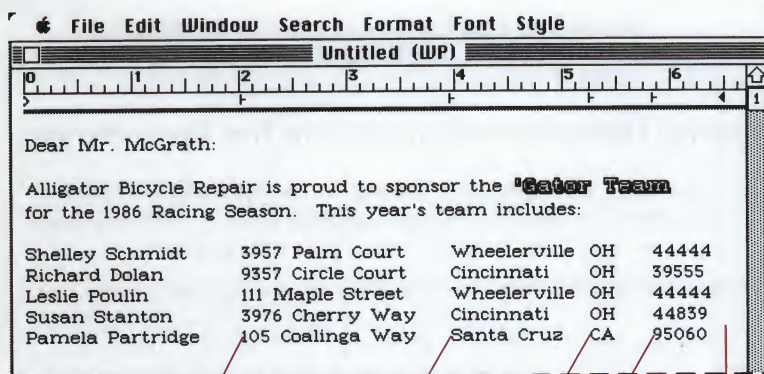
return characters to keep the information in its characteristic columns and rows.

Copying from the Word Processor to the Database or Spreadsheet

You may have information in a Word Processor document that you want to copy to the Database or Spreadsheet. You can copy the information as you normally would, but you need to tell Works how to distinguish between fields and records or columns and rows. Each piece of information that will go into a field or cell should be separated from the next piece by a tab character or by two or more blank spaces. Each record or row should be ended with a return character. Any blank lines become blank records or rows.

To copy Word Processor information to the Database or Spreadsheet:

- 1 In the Word Processor, insert tab characters between text that you want to appear in separate fields or columns. Insert return characters to start new records or rows.



Tab characters are inserted to prepare for pasting into the Database.

Return characters follow each line.

To copy from the Word Processor

- 2 In the Word Processor document, select the text that you want to copy.
- 3 Choose Copy from the Edit menu.
- 4 Activate the Database or Spreadsheet document.

- 5 Select the entry or cell in the upper-left corner of the area you want to paste into. Since the information fills fields and cells to the right, and records and rows down, make sure that the records or cells in this area are blank.
- 6 Choose Paste from the Edit menu.

Works pastes the copied information.

You can now use Database or Spreadsheet commands to manipulate the information. After adjusting the width of several columns, the Spreadsheet document looks like this:

Gator Team (DB)					
Name	Address	City	State	Zip	
Shelley Schmidt	3957 Palm Court	Wheelerville	OH	44444	
Richard Dolan	9357 Circle Court	Cincinnati	OH	39555	
Leslie Poulin	111 Maple Street	Wheelerville	OH	44444	
Susan Stanton	3976 Cherry Way	Cincinnati	OH	44839	
Pamela Partridge	105 Coalinga Way	Santa Cruz	CA	95060	

The copied information is pasted into the Database document, beginning with the selected entry.

Copying Database Information to the Spreadsheet

To copy from the Database to the Spreadsheet

When you copy Database information to the Spreadsheet, each entry becomes one cell in the Spreadsheet, each record becomes part of a row, and each field becomes part of a column.

To copy information from the Database to the Spreadsheet:

- 1 Select the information in a Database list window. You can select individual or adjacent records, fields, or field entries. When you copy Database information, Works normally copies field names as well as the selection. To copy only the selection, without the field names, hold down the Option key while you choose the Paste command.

File Edit Window Organize Format Report					
1	Hamburgers				
Requests (DB)					
Team	Number on Team	Requested Food	Cost per Person	Local Supplier?	Av
USA	10	Hamburgers	\$5.10	Yes	Ma
France	7	Bouillabaisse	\$1.50	Yes	Ma
Germany	8	Brezen	\$1.10	Yes	Ma
Austria	5	Wiener Schnitzel	\$4.25	Yes	Ma
Australia	8	Barbequed Shrimp	\$6.10	Yes	Au
Sweden	5	Knackebrod	\$1.95	Yes	Ma
Denmark	6	Polse	\$4.60	Yes	Ma
Greece	5	Moussaka	\$3.95	Yes	Ma
Thailand	4	Peanut Chicken	\$5.25	Yes	Ma
Argentina	6	Steaks	\$7.20	Yes	Ma
Spain	6	Tapas	\$4.35	Yes	Ma
Canada	8	Pea Soup	\$1.20	Yes	Ma
Holland	4	Goudse Kaas	\$2.95	Yes	Jun

- 2 Choose Copy from the Edit menu.
 - 3 Activate the Spreadsheet window.
 - 4 Select the cell in the upper-left corner of the area you want to paste into.
- Since the information fills cells to the right and rows down, make sure that the cells in this area are blank. If you want to copy over existing cells, you can. Works will ask you to confirm the loss of some data before proceeding.
- 5 Choose Paste from the Edit menu.

Works pastes the selected information into the Spreadsheet.

When you copy from the Database,
Works always pastes the field
names as well as the selection.

	A	B	C	D	E	F
1						
2						
3	Requested Food	Cost per Person				
4	Hamburgers	\$5.10				
5	Bouillabaisse	\$1.50				
6	Brezen	\$1.10				
7	Wiener Schnitzel	\$4.25				
8	Barbequed Shrimp	\$6.10				
9	Knackebrod	\$1.95				
10	Polse	\$4.60				
11	Moussaka	\$3.95				
12	Peanut Chicken	\$5.25				
13	Steaks	\$7.20				
14	Tapas	\$4.35				
15	Pea Soup	\$1.20				
16	Goudse Kaas	\$2.95				
17						

Text becomes Spreadsheet labels, and numbers become Spreadsheet values. Works copies the field names as labels in one row, with each record in a separate row. The information is displayed in the existing cell format.

Copying Spreadsheet Information to the Database

When you copy Spreadsheet information to the Database, each Spreadsheet column becomes a Database field. Each Spreadsheet row (or portion of a row) you copy becomes a Database record. If you paste a Spreadsheet column below an existing field, or a Spreadsheet row to the right of an existing record, the new and existing information combine to make one field or one record.

In the Database, you'll need to set up enough fields to accommodate all the columns you're copying from the Spreadsheet. The columns that don't fit won't be pasted into the Database.

To copy information from the Spreadsheet to the Database:

- 1 Select the information in the Spreadsheet. You can select a single cell, a block of cells, or entire rows or columns.

**To copy from the
Spreadsheet to the
Database**

File Edit Window Select Format Options Chart						
A3	Expenses					
Budget (\$\$)						
	A	B	C	D	E	F
1	Alpine Race Budget					
2						
3	Expenses	May	Percent	June	Percent	
4	Basic Food	\$30,000	22.22%	\$10,000	15%	
5	Special Food Requests	\$6,000	4.44%	\$6,000	9%	
6	Lodging	\$60,000	44.44%	\$20,000	30%	
7	Bicycles	\$20,000	14.81%	\$5,000	7%	
8	Promotions	\$12,000	8.89%	\$12,000	18%	
9	Total Expenses	\$128,000	94.81%	\$53,000	79%	
10						
11	Total Budget Available	\$135,000	100.00%	\$67,500	100%	
12						
13	Under (Over) Budget	\$7,000	5.19%	\$14,500	21%	
14						

- 2 Choose Copy from the Edit menu.
- 3 Activate the Database window.
- 4 Select the entry in the upper-left corner of the area you want to paste into.

If you don't want the Spreadsheet information to be copied over existing Database text, select the blank record at the end of the Database document. If you select text, the Spreadsheet information will be pasted over it, but you'll first see an alert box asking you to confirm that it is acceptable to have the Database text deleted.

- 5 Choose Paste from the Edit menu.

Works pastes the selected cells into the Database document. Each cell becomes a Database entry.

File Edit Window Organize Format Report			
1	Expenses		
Untitled (DB)			
Untitled1	Untitled2	Untitled3	
Expenses	May	Percent	
Basic Food	\$30,000	22.22%	
Special Food Request	\$6,000	4.44%	
Lodging	\$60,000	44.44%	
Bicycles	\$20,000	14.81%	
Promotions	\$12,000	8.89%	
Total Expenses	\$122,000	94.81%	

To copy Communications information

Copying Communications Information

You copy information from a Communications document in different ways, depending on how you received it.

If you used the Capture Text command to gather the information, the information is already stored in a Word Processor file. In this case, follow the procedures for copying from Word Processor documents.

If you used the Receive File command to gather the information, use the procedure that is appropriate to the file you received. For example, if you received a Spreadsheet file and want to copy it into a Works Database document, see "Copying Spreadsheet Information to the Database" in this chapter.

Adding Finishing Touches

Once you've moved information from one tool to another, you can modify it as you would any information in that tool. Since the Word Processor gives you the most options for formatting, this section gives you some ideas on how you can enhance the appearance of information you've integrated in a Word Processor document.

Formatting Text

Here are some ideas for changing the appearance of the overall document:

To format text

- Change the font, type size, or type style of the entire document or portions of it.
- If you've copied a large amount of information, you may wish to repaginate by inserting manual page breaks.
- Move the tab stops to adjust columnar tables.
- Change the line spacing or indent certain pieces of information for emphasis.
- Add headers and footers using the range of options available in the Word Processor.
- Use the Draw command to add lines, boxes, or circles to separate and draw attention to important information.

Editing Pictures

A picture is a chart from the Spreadsheet, graphics from a Macintosh drawing program such as MacPaint or MacDraw, or lines and shapes from the Word Processor. When you add a picture to a Word Processing document, you can still work with it:

- Add text for titles and labels.
- Add lines from the labels to the picture.
- Draw additional lines or shapes with the Word Processor Draw command.
- Change the proportions to make the picture wider or taller.
- Move pictures.
- Delete pictures.

For more information on using the Word Processor's drawing capability, see Chapter 4, "Formatting a Document."

Selecting and Sizing a Picture

Once you've copied a picture into a Word Processor document, you may find that it's not in the right place, it doesn't quite fit, or it would look better in a different size.

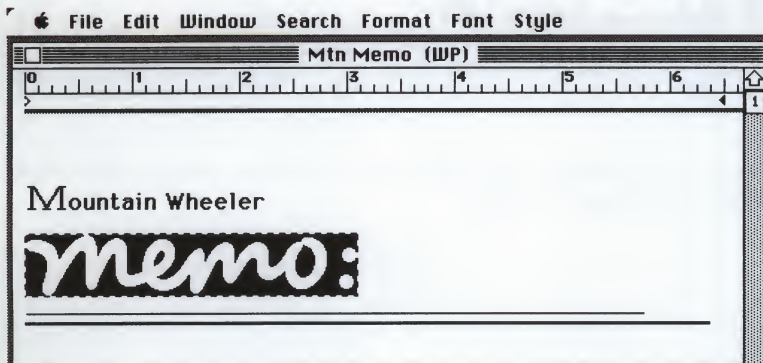
In order to manipulate a picture in the Word Processor, you first must select it. After you've selected a picture, you can change its size, or copy, move, or delete it.

To select a picture:

- 1 Click on or to the left of the picture.
- 2 Choose Select Picture from the Edit menu.

To edit pictures

To select a picture



A blinking dashed line surrounds the highlighted picture. The picture remains selected until you click elsewhere.

Note Remember, text that you type with the Word Processor is not part of a picture and can't be selected while a picture is selected. You can, however, select both text and a picture by dragging over text that encloses a picture.

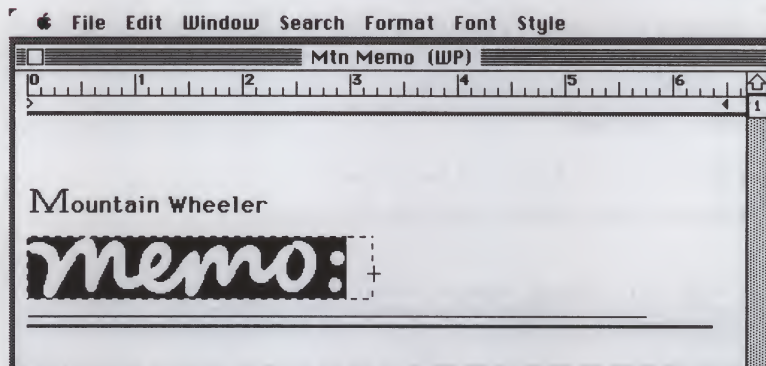
If you have several pictures close together, continue to choose Select Picture from the Edit menu without moving the insertion point. Works will continue to select the next picture.

To change the size of a picture

You can adjust the size of pictures in a Word Processor document.

To change the size of a picture:

- 1 Select the picture.
- 2 Position the pointer directly over one of the borders until the pointer changes to a cross (+).
- 3 Drag horizontally or vertically to change the width or height of the picture.



If you're not satisfied with the change, you can choose Undo from the Edit menu and try again.

If you're not satisfied with a picture's location, you can move it.

To move a picture by dragging it:

- 1 Select the picture.
- 2 Position the pointer on the picture.
The pointer changes to a hand.
- 3 Drag the picture to the new location.

To move a picture with Cut or Copy:

- 1 Select the picture.
- 2 Choose Cut or Copy from the Edit menu, position the insertion point, and paste it at the new location.

Adding Text to Pictures

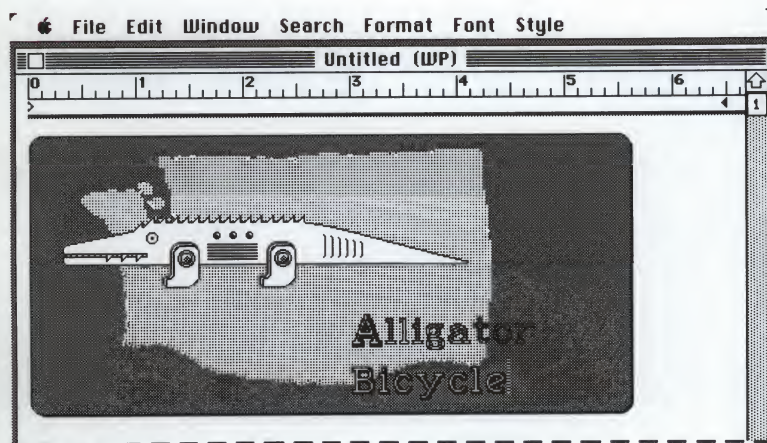
You can type text directly over a picture in a Word Processor document or in any area around it. You can add special labels to a graph, add a large title to a chart for a presentation, or call out special points using lines and text.

To add text to a picture:

- 1 Position the insertion point where you want to type on the picture.
Unless you want to begin typing at the left margin, you'll need to use the spacebar or the Tab key to reach the location you want.
- 2 Start typing.

To move a picture to a new location

To add text to a picture



Text that crosses a line or dark area of a picture may be difficult to read. Experiment with different type styles such as Shadow or Outline until you get the desired effect.

Text that you type over a picture in the Word Processor is the same as text you type anywhere else. Standard Macintosh editing commands work normally.

To remove text from a picture

To remove text from a picture:

- 1 Select the text.
- 2 Choose Cut or Clear from the Edit menu.

Note You can only remove text you've added in the Word Processor. You cannot remove any text that was pasted as part of the picture.

This chapter gives you the skills you need to move information between tools. Chapter 21, "Merging: Creating Mailing Labels, Form Letters, and Forms," gives you another way to automatically combine information from different tools with the Word Processor's merge capability.

21 Merging: Creating Mailing Labels, Form Letters, and Forms

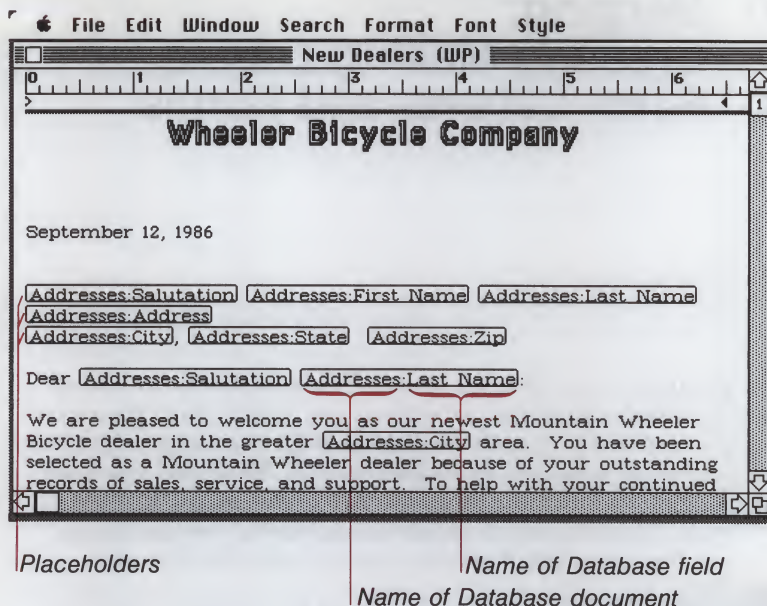
The Word Processor and the Database work together to let you combine information from a Database document into a form you create in a Word Processor document. With this merge capability, you can create form letters, address mailing labels and envelopes, and print on preprinted continuous forms. By using the Word Processor's drawing and formatting capabilities, you can design an attractive form that Works fills out for you automatically.

This chapter begins with an overview of the merge procedure, followed by several examples of how to use merging in your work. You'll learn how to:

- Create a merge document using the Word Processor and Database.
- Print a series of customized documents.
- Create mailing labels.
- Create a form letter.
- Fill out forms — those you design yourself using the Word Processor and preprinted forms.

Creating a Merge Document

A merge document looks like any other Word Processor document, except that it contains placeholders in place of some regular text. A placeholder is a rectangle containing the name of a Database document and a field name. A merge document looks something like this:



About the merge procedure

To create a merge document, you add information from a Database document to a Word Processor document. First you indicate where you want information to go by inserting placeholders into your Word Processor document with the Prepare to Merge command. Then you use the Print Merge command to print customized copies of the Word Processor document. For each entry in a Database field you specify, Works prints one Word Processor document, replacing the placeholder with an entry from the specified field. So, each record in the Database document produces one customized Word Processor document.

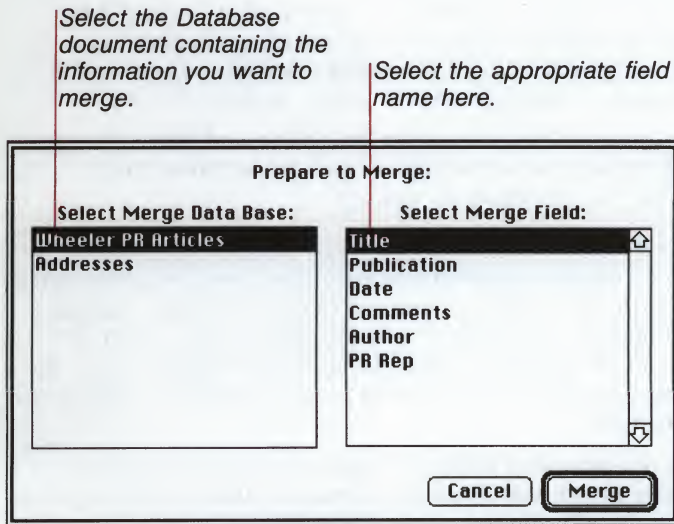
The general procedure for creating a merge document and printing the customized copies is summarized below. Specific examples follow on how to use merging to create mailing labels, form letters, and customized forms.

To create a merge document

Begin by opening both the Database document you want to merge information from and the Word Processor document you want to merge information into.

- 1 Create a Database document with the information you need, or open an existing Database file.
You can have more than one Database document open to merge from.
- 2 Create a new Word Processor document, or open an existing Word Processor file.

- 3 In the Word Processor document, type any text that will remain the same for all the copies.
- 4 Position the insertion point where you want to insert the first placeholder.
- 5 Choose Prepare to Merge from the Edit menu.



- 6 Select the Database document you want to use.
Works displays a list of the field names for that document.
- 7 Select the appropriate field name.
- 8 Click the Merge button.
Works inserts a placeholder, containing the name of the Database document and the specified field name, at the insertion point in the Word Processor document.

Note Works will wordwrap a placeholder to the next line if the placeholder will not fit. However, the actual information may or may not wordwrap, depending on its length. To check, choose Show Field Data from the Edit menu.

- 9 After you insert each placeholder, you can add any appropriate spacing or punctuation around it before inserting another.
- 10 Repeat steps 4 through 9 for each piece of Database information you want to include in your Word Processor document.

To view merge information

Anytime you want to view Database information as it will look in your finished document:

- Choose Show Field Data from the Edit menu.

Works displays information from the first record in the specified Database document if no record is selected, or from the currently selected record. You can change the information displayed by activating the Database document and selecting another record. When you activate the Word Processor document again, you'll see information displayed from the newly selected record.

When you choose Show Field Data, the command name changes to Show Field Names on the Edit menu. Choose Show Field Names to see the placeholders again.

Note If you close a specified Database document, or if you open the Word Processor merge document before you have opened a specified Database document, you'll see the message "NOT ON DESKTOP" in the appropriate placeholder. You need to open the Database document in order to print or see information displayed from the records.

If you delete a specified field or change a specified field name in a Database document, you'll see the message "FIELD NOT IN DB" in the appropriate placeholder.

To delete a placeholder

You can delete placeholders in a Word Processor document at any time.

- 1 Select the placeholder as you would any text.
- 2 Press the Backspace key, or use the Cut or Clear command from the Edit menu.

The placeholder disappears.

To change the font or style of a placeholder

You can change the font, type size, or type style of a placeholder.

- 1 Select the placeholder as you would any text.
- 2 Choose commands from the Font or Style menu.

The information in the placeholder changes to reflect your choices.

Printing Customized Documents

You use the Print Merge command to print your customized documents. To prepare for printing:

- 1 In the specified Database document(s), sort the records to arrange them in the order you want them to print.
- 2 If you want to print only a subset of the records in the Database, use the Record Selection or Match Records command from the Organize menu to select the records you want to print.
- 3 Activate the Word Processor merge document, and choose Page Setup from the File menu and make any changes.
- 4 Prepare your printer for printing, adding special forms or paper.

To print your customized documents:

- 1 Choose Print Merge from the File menu.
You'll get the same dialog box as for normal printing.
- 2 Click any appropriate options, then click the OK button.

Works begins to print the customized documents.

If you choose Print instead of Print Merge from the File menu, Works prints one copy of the Word Processor merge document with the placeholders in place. If you choose Show Field Data and then choose Print, Works prints one copy of the document with the data from the first record or the selected record.

Creating Mailing Labels

To create mailing labels, you change options in the Page Setup dialog box to correspond to the measurements of your mailing label, then create a merge document in the Word Processor containing only placeholders. You can save the document to use whenever you want to print mailing labels.

Note These instructions assume you are using continuous "1 up" labels and an ImageWriter printer. You cannot use continuous forms with the Apple LaserWriter.

To prepare to print customized documents

To print customized documents

To create mailing labels

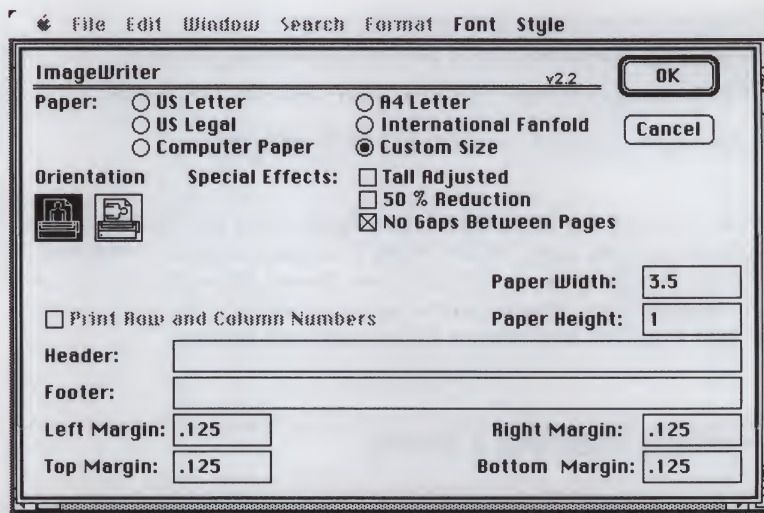
To change options with Page Setup

First, change options in the Page Setup dialog box.

- 1 Create a new Word Processor document.
- 2 Choose Page Setup from the File menu.
- 3 Click the Custom Size option.
- 4 Measure the width of the mailing label. Type this measurement in the Paper Width box.
- 5 Measure the height of the mailing label, plus the gap between labels. (Measure from the top of one label to the top of the next.) Type this measurement in the Paper Height box.
- 6 Click the No Gaps Between Pages option.
- 7 Change the margins.

Type numbers to represent inches or fractions of inches. For example, typing .25 would leave a quarter of an inch margin, and typing .125 would leave an eighth of an inch margin.

The completed dialog box will look something like this:



- 8 Click the OK button.

To set up the merge document

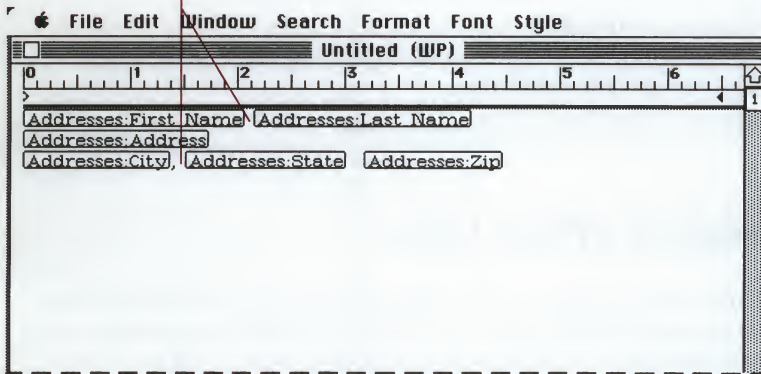
Next, set up the merge document.

- 1 Open the Database file you want to use for the mailing labels.

- 2 Activate the Word Processor merge document and design your mailing label by choosing the font, type size, and type style you want from the Font and Style menus.
- 3 Choose Prepare to Merge from the Edit menu to insert the placeholders. To review this procedure, see “Creating a Merge Document” earlier in this chapter.

Arrange the placeholders as you normally would a name and address — usually with the name on the first line, street address on the second, and city, state, and zip on the third.

Remember to add spaces and appropriate punctuation between placeholders.



Hints You can use the Word Processor’s ruler to indicate the width of your label in the Word Processor. Set the margins to correspond to the width of the label minus the Right and Left Margin measurements you specified with Page Setup.

To see the amount of vertical space available in your label, you can press the Return key until you see a page break line. The space between the beginning of the document and the page break is the amount of vertical space you have to work with.

To see how the actual information looks, and to adjust the alignment if necessary:

- Choose Show Field Data from the Edit menu.
If a page break indicator appears, you’ve reached the end of the label.

To print the labels

Now you're ready to print the mailing labels.

- 1 Choose Print Merge from the File menu.
Works displays the regular Print dialog box.
- 2 Click the OK button.

You may need to experiment with label alignment. Test your alignment with a few records first. Adjust the horizontal alignment of the labels in the printer until you are satisfied.

Other ideas

You can use this same method to create other label-like documents. Here are a few suggestions:

- Address envelopes.
- Print continuous index cards to catalog your phonograph record or tape collection.
- Print membership cards for a club.

Creating a Form Letter

A form letter contains some standard text, but also adds information specific to each recipient. Names and addresses are the most common types of information you would want to merge into a form letter. But you can also create a Database document with specific phrases or sentences that apply to individual recipients.

For example, if you sell bicycles to bike shops, you might want to thank each shop individually for its order, mentioning the amount the shop purchased.

To set up a form letter

To set up a form letter, you create a merge document by typing all the text that will remain the same in each letter, and inserting placeholders for the information that will vary. If you need to review this procedure, follow the instructions in "Creating a Merge Document" earlier in this chapter.

File Edit Window Search Format Font Style

1st Quarter Orders (WP)

From the Desk of:

Marvin A. Carlson
Regional Sales Manager

September 18, 1986

Addresses:First Name Addresses:Last Name
Addresses:Address
Addresses:City, Addresses:State Addresses:Zip

Dear Addresses:Salutation Addresses:Last Name:

Thank you for your continued support of Wheeler Bicycle Company. As a valued dealer for our products, I am sure you will be pleased to know that your recent order (Orders:Order #) of (Orders:Amount) places you in the top (Orders:Percent) of sales in the North Central

Filling Out Forms

Nearly any office or business uses a variety of forms:

- Expense reports
- Address lists of customers, clients, friends, and contacts
- Invoices and statements

You can set up a form in the Word Processor as though you were preparing a document for an individual client. By merging with the Database, you can set it up once, and have Works fill it out whenever you need it.

Your entire form can come from your Word Processor document, or you can design a layout that prints information on a preprinted continuous form.

Creating Your Own Form

By creating your form in the Word Processor, you'll have flexibility with alignment, positioning, fonts, type sizes, type styles, and shapes and lines from the Draw feature.

With a drawing program, such as MacDraw or MacPaint, you can prepare an entire form with shading, icons, trademark symbols, rounded boxes, and other professional-looking touches. Then you can copy the form to the Word Processor as a picture, and add merge field names.

To set up a form

To set up a form that you can later complete during a print merge:

- 1 Open or create the Database document that contains your information.
- 2 Create a new Word Processor document and design your form. Type any standard text. Use Page Setup from the File menu and Draw from the Edit menu. Use the type options available to you from the Style and Font menus.
- 3 When you are satisfied with your form, add placeholders and complete your merge document.
If you need to review this procedure, see "Creating a Merge Document" earlier in this chapter.

File Edit Window Search Format Font Style

Statement Form (WP)

0 1 2 3 4 5 6

Wheeler Bicycle Company
1076 Evergreen Street
Youngstown, OH 66999

To: Acct Rec:Company Name
Acct Rec:Address
Acct Rec:City, Acct Rec:State Acct Rec:Zip

Invoice No.	Description	Payment
<u>Orders:Invoice</u>	<u>Orders:Description</u>	<u>Orders:Payment</u>

Using Preprinted Forms

If you decide to use preprinted continuous forms, measure one of the forms and include the measurements in the Page Setup dialog box. If you need to review this procedure, see "Creating Mailing Labels" earlier in this chapter.

Using preprinted forms will take some experimentation to get precise alignment. But once the merge document is set up, you can save it and use it over and over again to print that form.

Appendix A

Disk Space and Memory

Microsoft Works contains two double-sided disks:

- Master Microsoft Works Program disk
- Backup Microsoft Works Program disk

The master and backup Works Program disks each contain the following files:

- Works application
- System
- Finder
- ImageWriter printer driver
- Help
- Works Hard Disk Install program
- Sample files for *Lessons*

To save space, you can move the Help file from the Program disk to another disk. When you choose the Help command, Works looks for the Help file on both the internal and external disk drives. If the file is not there, Works asks you to insert a disk containing the Help file. Insert the appropriate disk and choose the Help command again.

You can also move the sample files from the Program disk to save space.

You can start Works with any disk that contains a System (Version 2.0 or later), a Finder (Version 4.1 or later), and, if you want to print, a printer driver. The Macintosh uses the current System and printer driver. The System contains the fonts available for the Works Word Processor.

**Removing files to
save space**

**Starting Works with
another system disk**

What happens when you start Works?

When you start Works with the Program disk in the internal disk drive, the Macintosh uses the System on this disk. The System determines which fonts are available. When you print a document on a Macintosh printer, the Macintosh also uses the printer driver on the Program disk. To use another System, or other fonts or printer drivers, copy the ones you want to your Program disk.

Using an external drive

Using an External Drive

Works operates more efficiently with an external drive. You can store documents on a separate, formatted disk in the extra drive. You don't need the Works program on this "document disk."

When you open a file from the Open dialog box, you can click the Drive button to see a list of files on the disk in the external disk drive. When you save a document, use the Save As command and click the Drive button to save to the external disk drive; or use Save to save a document to the disk that it was opened from. Works saves to the disk whose name appears above the Eject button. This disk will be the one you last specified with the Drive button in either the Open or Save As dialog box.

Using Works with a hard disk

Using Works with a Hard Disk

You can install and use Works on a hard disk. The Works Program disk has a program called Works Hard Disk Install. This program helps you to install Works on certain hard disks. More importantly, if you use the Works Hard Disk Install program to install Works on your hard disk, you will not have to insert the master Program disk each time you start Works after turning on your Macintosh.

To see a list of the hard disks that Works Hard Disk Install works with:

- ☒ Double-click the Works Hard Disk Install icon.

If your hard disk is listed in the dialog box, and you want to install Works on your hard disk, click the OK button. Otherwise, click the Cancel button. If your hard disk is not on the list, you can still copy Works to your hard disk by following the directions in "Copying Works to a Hard Disk" later in this appendix.

Note Installing Works on your hard disk does not change or harm your master Works Program disk. If you install Works on your hard disk, you can still use the Program disk in a regular disk drive.

Installing Works on a Hard Disk

You can install Works on a hard disk only once, so make sure you have organized your hard disk the way you want before you install Works.

To install Works on a hard disk:

- 1 Double-click the Works Hard Disk Install icon.
- 2 Follow the directions in the dialog boxes.

You have several opportunities during the install procedure to cancel it if you want.

Note Although you can install Works on a hard disk only once, you can make copies of Works on the hard disk. For example, to make sure you don't inadvertently lose your installed copy of Works, you might want to put a copy of Works on another part of your hard disk. See your hard disk owner's manual for information on how to copy files from one part of your hard disk to another.

Copying Works to a Hard Disk

If you are using Works with a hard disk, and the Works Hard Disk Install program does not work with your hard disk, copy Works using the procedure below.

Warning Be sure to double-click the master Works Program disk icon before you drag the Microsoft Works application icon. Do not drag the Program disk icon over the hard disk icon.

Installing Works on a hard disk

Copying Works to a hard disk

- 1 From the Finder, double-click the master Works Program disk icon.
- 2 Drag the Microsoft Works application icon over the icon for the volume of your hard disk where you want to put Works.
- 3 Drag the Help icon over the hard disk icon.

You can copy the sample files to the hard disk as well, or you can use them from the internal disk drive.

The first time you start Works with the hard disk after you turn on the Macintosh, you will be prompted to insert the master Works Program disk so that the Macintosh can read the identification number. When it has read the number, the master disk will be ejected, and you can begin to work.

Appendix B

Using Works with Other Applications

With Works, you can import information created with other Macintosh applications. You can also export information from Works to other applications. This appendix explains how to:

- Import non-Works files to create Works Word Processor, Database, and Spreadsheet documents.
- Export Works documents to create files you can use with other applications.
- Import database files from AppleWorks and *III* E-Z Pieces.
- Use SYLK files from Microsoft Multiplan® or Microsoft Excel.
- Use the Scrapbook and Clipboard to move items between applications.
- Use Switcher to automatically install Works with a set of frequently used applications.

Importing Non-Works Files

With Works, you can import files from numerous programs and create Works documents from them.

Word Processor Documents

You can create a Works Word Processor document from a file created in any of the following programs:

- Microsoft Word
- MacWrite
- Any application program that can create a text file. Text files contain only the alphabetic, numeric, and tab characters of a document, as well as the spaces and carriage returns. (Text files are sometimes called ASCII files.) SYLK files are a type of text file.

Importing non-Works files

To import a Word, MacWrite, or text file to the Works Word Processor:

- 1 Choose Open from the File menu.
- 2 Click the Word Processor icon.
- 3 Click Import File.

Works lists all Word, MacWrite, and text files on the current disk.

Note You should not open SYLK files from the Word Processor. If you do open one, just close it and open another file instead.

- 4 Click the name of the file you want to import as a Word Processor document.
- 5 Click the Open button.

Works opens a Word Processor window, called Untitled, containing the document you specified.

Database Documents

You can create a Works Database document from a text file created by other programs, such as Microsoft File.

Works can import files to the Database created in any of three formats:

- Fields within each record in the database are separated by a tab character, and records are separated by a return character. (Microsoft File uses this format when saving files as text.)
- Fields within each record in the database are separated by two or more spaces, and records are separated by a return character.
- Fields within each record in the database are separated by a return character, and there is a fixed number of fields per record. You will need to tell Works how many fields there are per record. (AppleWorks uses this format when converting database files to Macintosh text files.)

To import a text file to the Works Database:

- 1 Choose Open from the File menu.
- 2 Click the Database icon.

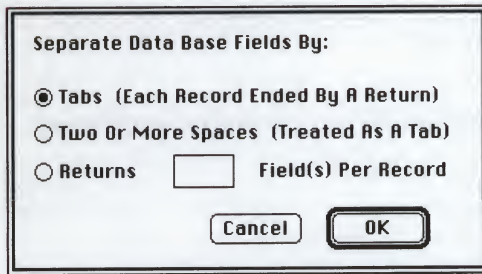
- 3 Click Import File.

Works lists all text files on the current disk.

Note You should not open SYLK files from the Database. If you do open one, just close it and open another file instead.

- 4 Click the name of the file you want to import as a Database document.
- 5 Click the Open button.

A dialog box appears, asking you to specify the format of the file.



- 6 Click the appropriate format option, and type the number of fields per record, if necessary.
- If you do not know the format of the text being imported, experiment with each one of the options. As long as you don't save a document with the wrong format, this is perfectly safe.
- 7 Click the OK button.

Works opens a Database window, called Untitled, containing the document you specified. The fields will be named "Field 1," "Field 2," and so on. You can rename the fields with the Change Field Name command from the Edit menu. The first record may consist of the field headings (field names). After you rename your fields, you may want to delete this record.

For specific information on how to import database documents from AppleWorks or *III E-Z Pieces*, see "Importing a Database File from AppleWorks or *III E-Z Pieces*" in this appendix.

Spreadsheet Documents

You can create a Works Spreadsheet document from a text file created in other applications.

Works can import files created in either of two formats:

- As a SYLK file created in Microsoft Multiplan or Microsoft Excel.

SYLK files contain both data and formatting information.

These files include values, formulas, text for labels, and information describing in which cells to place the labels.

For more information on using SYLK files from other spreadsheet applications, see “Notes for Porting SYLK Files to or from Works” in this appendix.

- As a text file in which text or numeric information is separated by tab characters, return characters, or both.

Information from a text file is placed into a Works Spreadsheet document beginning at cell A1. A return character tells Works to begin a new row. A tab character indicates the beginning of the content of a new cell.

To import SYLK or other text files to the Works Spreadsheet:

- 1 Choose Open from the File menu.

- 2 Click the Spreadsheet icon.

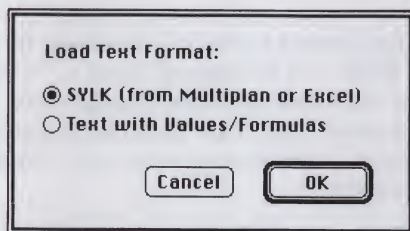
- 3 Click Import File.

Works lists all SYLK and other text files on the current disk.

- 4 Click the name of the file you want to import as a Spreadsheet document.

- 5 Click the Open button.

A dialog box appears asking you to specify the format of the text file.



- Click SYLK if the file was created by Multiplan or Excel.
- Click Text with Values/Formulas if it is a text file with values, or formulas, or both.

- 6 Click the OK button.

Works opens a Spreadsheet window, called *Untitled*, containing the document you specified.

If a SYLK file that you are importing contains a formula that Works cannot read, Works loads the file and turns the unreadable formula into text by inserting a quotation mark (") in front of it. To have Works use the text as a formula, make any necessary changes and delete the quotation mark.

Exporting Documents to Files That Can Be Used with Other Applications

Exporting documents

You can export any Works Word Processor, Database, or Spreadsheet document.

You save a Word Processor document as a text file with no pictures or formatting.

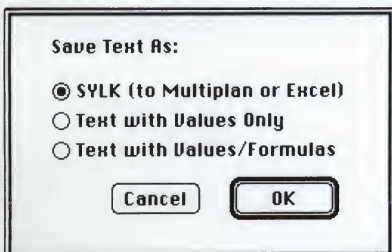
You save a Database document as a text file with records separated by return characters, and fields within each record separated by tab characters. Works automatically saves the field names as the first record of the text file.

You save a Spreadsheet document in the SYLK format or as a text file.

To export a Works document:

- 1 Choose **Save As** from the **File** menu.
- 2 Click **Export File** and type a name for the document.
- 3 Click the **Save** button.

For a Spreadsheet document, after you click **Export File** and **Save**, Works displays another dialog box asking you to specify the format to save with.



- Click the SYLK option if you want to use the document with Multiplan or Excel.
- Click the Text with Values Only option to save the document as text with only the values in the cells.
- Click the Text with Values/Formulas option to save the document as text with both the values and the formulas.

After clicking an option:

- Click the OK button.

Importing from AppleWorks or III E-Z Pieces

Importing a Database File from AppleWorks or III E-Z Pieces

There are three phases to the process of importing database files from AppleWorks or III E-Z Pieces.

Phase 1

In the first phase, you'll convert a database file from AppleWorks or III E-Z Pieces into a text file.

- 1 Start AppleWorks or III E-Z Pieces.
- 2 Load the database you want to export to the Macintosh.
- 3 Look at your database in single-record layout and note the number of fields in the database. (You'll use this number in Phase 3.)
- 4 Press Open Apple-P to see the Report menu.
- 5 Choose the option for creating a new "tables" format.
- 6 Type a name for the report.
- 7 Press Open Apple-P to print the report.
- 8 Choose the option for a text (ASCII) file on disk.
- 9 Type a pathname and press Return. Your file will be recorded. (You'll use this pathname again in Phase 2.)
- 10 Exit AppleWorks or III E-Z Pieces when you are done.

Phase 2

In the second phase, you'll connect the Apple IIe/c or Apple III to the Macintosh and transmit the text file.

- 1 Connect the Macintosh terminal port to the RS-232 port on the Apple IIe/c or Apple III.
- 2 Start Works on the Macintosh.
Works displays the Open dialog box.
- 3 Click the Communications icon and the New button.
Works displays the Settings dialog box. All the preset options are acceptable, with the possible exception of the baud rate and the port connector.
1200 baud is recommended. If you're using the printer port on the Macintosh, click the printer icon for the Connect To setting.
Then, click the OK button.
- 4 Choose Capture Text from the Communications menu.
Use the Eject and Drive buttons to arrange your disks so that the disk receiving the imported file has sufficient space (about three times the size of the file you're importing). Use the proposed filename, "Captured Text".
- 5 Click the Save button.
- 6 Start the Apple IIe/c or Apple III with Access *II* or Access *III*.
For an Apple III, the RS-232 driver should be configured at the same baud rate set on the Macintosh.
- 7 Go to Terminal Mode.
- 8 Press Open Apple-S.
Set the settings as shown below:
 - Ansi Mode
 - No LF after CR
 - 8 Bits
 - Enable XON/XOFF
 - Normal Video
 - Half Duplex
 - Wraparound
 - Speed = 1200 (or same as Macintosh)
 - Parity = none
- 9 Exit Terminal Mode.

- 10 Select "Transmit a file".
- 11 Enter the pathname you typed in step 9 of Phase 1.
- 12 Enter a line delay of 60.
- 13 Enter a delay between characters of 30.
- 14 Press Y when prompted "Are you ready to start transmitting?"

The file will be transmitted to the Macintosh. You'll see the data on both screens. As it is received, the data will be saved as a Word Processor file named Captured Text.

Phase 3

In the third phase, you'll convert the new Word Processor file to a Works Database file. All of the steps in the procedure below refer to actions you'll take using Works on the Macintosh.

- 1 When the Apple IIe/c or Apple III indicates that transmission is complete, choose End Text Capture from the Works Communications menu.
- 2 Choose Open from the File menu, then click the Word Processor icon.
- 3 Select the filename Captured Text in the list box, then click the Open button.
- 4 When the file has been opened, choose Save As from the File menu.
- 5 Click Export File, then click the Save button.
- 6 Close the Captured Text Word Processor document.
Works displays the Open dialog box.
- 7 Click the Database icon, then click Import File.
- 8 Select the filename Captured Text from the list box, then click the Open button.
Works displays a dialog box in which you specify the format of the file.
- 9 Click the Returns option. Type the number of fields you noted in step 3 of Phase 1.
- 10 Click the OK button.

Works opens a Database window, called Untitled, containing the imported text.

The fields in the newly created document are named "Field 1," "Field 2," and so on. To rename them, use the Change Field Name command from the Edit menu. You can then make any other changes you want to the document.

To save the Database document with a name other than Captured Text, use the Save As command.

Notes for Porting SYLK Files to or from Works

If you plan to import SYLK files created either with Microsoft Multiplan or Microsoft Excel, or to export Works Spreadsheet documents to Multiplan or Excel, you should consider differences in the three programs that may make spreadsheets created in one program perform differently (or not at all) in another program.

Features of the Three Spreadsheet Programs

External references; named cells, rows, columns, or selections; and linked spreadsheets are features of Excel and Multiplan that are not implemented in Works. However, Works is able to read spreadsheets from Multiplan and Excel that contain named cells.

Differences in Formatting Numeric Values

Each of the three programs uses a different way of representing numeric values.

Works ignores all formatting of values specified in a SYLK file and treats all values as if they were in Works General format.

Differences in Data Type Supported

Works treats date and time data in SYLK files as text.

Differences in Error Values

Error values are different in Works and Excel.

Differences in Operators

Works does not support the intersection (space), union (,), or concatenation (&) operators that Excel and Multiplan support.

Differences in the Built-In Functions

There are a number of differences in the functions supported by the three programs.

Differences in the Arithmetic Results Produced by the Built-In Functions

The functions built into Works should produce results nearly identical to those produced by Excel.

Extremely large and extremely small numbers may produce small differences in the results of calculations due to the different internal representation and methods of performing arithmetic used by the two programs.

Works performs arithmetic using the Standard Apple Numeric Environment (SANE) package. This package has a precision of 80 bits (64-bit precision), or approximately 18 decimal digits.

Differences in Implementation

The functions HLookup, Index, Lookup, Match, Type, and VLookup are implemented differently in Works than in Excel or Multiplan. If you use argument values that are acceptable to Excel or Multiplan, Works gives the same results that Excel or Multiplan gives. Works also allows some argument values that Excel and Multiplan do not.

Also, the IsError function in Works gives 0 if the argument is N/A. In Excel and Multiplan, IsError gives TRUE if the argument is #N/A.

Differences in Logical Values

The functions And, Or, Not, True, and False give the values TRUE or FALSE in Excel and Multiplan. These functions give the values 1 or 0 in Works.

Built-In Functions Available for Use in Formulas

Not all functions are available in all three programs. Some arguments that are optional in Excel are required by Works, such as in the Index function. The following table identifies those functions that are available in one or two of the programs, but not in all three. An "X" means that the function is available for that program.

Different Functions in Microsoft Works, Excel, and Multiplan

Function	Works	Excel	Multiplan
ACOS	X	X	
AREAS		X	
ASIN	X	X	
ATAN2	X	X	
CHOOSE	X	X	
COLUMN		X	X
COLUMNS		X	
DATE		X	
DAVERAGE		X	
DAY		X	
DCOUNT		X	
DEGREES	X		
DELTA			X
DMAX		X	
DMIN		X	
DOLLAR		X	X
DSTDEV		X	
DSUM		X	
DVAR		X	
ERROR	X		
FIXED		X	X
GROWTH		X	
HLOOKUP*	X	X	
HOUR		X	
INDEX (Form 2)		X	
ISBLANK	X		
ISREF		X	
ITERCNT			X
LEN		X	X
LINEST		X	
LOGEST		X	
LOOKUP (Form 2)		X	
MATCH*	X	X	
MID		X	X

Different Functions in Microsoft Works, Excel, and Multiplan

Function	Works	Excel	Multiplan
MINUTE		X	
MONTH		X	
NOW		X	
RADIANS	X		
RAND	X	X	
REPT		X	X
ROW		X	X
ROWS		X	
SEARCH		X	
SECOND		X	
SSUM	X		
TEXT		X	
TIME		X	
TRANSPOSE**		X	
TREND		X	
TYPE*	X	X	
VALUE		X	X
VAR	X	X	
VLOOKUP*	X	X	
WEEKDAY		X	
YEAR		X	

*The Works implementation of this function is more general than that of the others. If you use the function in a form acceptable to Excel, Works gives the same result that Excel does. Works also allows some inputs that Excel does not.

**In Works, the TRANSPOSE operation is available as an option in the Paste with Options command.

Using the Scrapbook and Clipboard

Use the Scrapbook when you want to move many items from one application to another.

To move information into the Scrapbook:

- 1 Select the information.
- 2 Choose Cut or Copy from the Edit menu to move the selection onto the Clipboard.
- 3 Choose Scrapbook from the Apple menu.
- 4 Choose Paste from the Edit menu.

Repeat this procedure for each item you want to move into the Scrapbook.

To move items from the Scrapbook, quit the application you were using and copy the Scrapbook file to the disk that has your copy of the destination application. Then:

- 1 Start the application.
- 2 Choose Scrapbook from the Apple menu.
- 3 Scroll the information in the Scrapbook until you find the item you want to move.
- 4 Choose Cut or Copy from the Edit menu to move the selection onto the Clipboard.
- 5 Close the Scrapbook.
- 6 Select an insertion point and choose Paste from the Edit menu.

Repeat this procedure for each item you want to move from the Scrapbook.

Note When you transfer information using the Scrapbook, be sure the Scrapbook file is on the same disk as your copy of the destination application.

**To move information
into the Scrapbook**

**To move items from
the Scrapbook**

MacPaint and MacDraw

Use the Clipboard or Scrapbook to copy or move pictures from MacPaint or MacDraw into a Works Word Processor document.

To change a picture

Once you have moved the picture, you can change its size and shape, and indent or align the picture.

For information on how to move or size it, see Chapter 20, "Moving Information Between the Tools."

Using Works with Switcher

You can use Works with Switcher if you regularly use Works with other applications, such as Microsoft Word, Excel, or MacPaint.

To use Switcher

To use Works with Switcher:

- 1 Copy Switcher onto the Works Program disk.
- 2 Double-click the Switcher icon.
- 3 Choose Install Application.
- 4 Select Microsoft Works from the Switcher menu.
- 5 Click the Open button.

Switcher automatically installs Works with the recommended amount of memory.

Now you can install any other applications you want to use. Once they are all installed, you can save the set. Then, whenever you open the set, all the applications will be installed automatically for you.

Appendix C

Printing with the Apple LaserWriter

You can print all of your Works documents on the Apple LaserWriter printer.

Before using the LaserWriter, you must install the LaserWriter printer driver. For instructions, see the manual you received with your LaserWriter.

After installing the LaserWriter software, choose the Chooser desk accessory from the Apple menu. Works displays a dialog box containing icons representing all printer drivers on the disk. Select the LaserWriter icon and type a User name if you want the Macintosh to remember who you are. Then click the close box.

LaserWriter Options

When you use the LaserWriter, the Page Setup and Print dialog boxes are slightly different than those shown in this manual. You'll see the following differences:

Custom Paper Size There is no Custom Paper Size option available for the LaserWriter.

Font Substitution This is a preset option that tells the LaserWriter to substitute its built-in fonts for whatever font is displayed on the screen. Choose this option for faster printing of Database and Spreadsheet documents.

The font used in the Database and Spreadsheet is Geneva 9. When you print any Database or Spreadsheet documents on the LaserWriter, the Font Substitution option automatically converts Geneva 9 to Helvetica 12. In the Word Processor, there is no automatic substitution for Boston, so you should choose a laser font before you print.

Reduction When printing with the ImageWriter, you have a choice of printing full size or at a 50% reduction.

With the LaserWriter, you can enter any percentage of reduction. Since the Font Substitution option on the LaserWriter converts Spreadsheet and Database information to Helvetica 12, if you print a Database or Spreadsheet document at 90% reduction, the printed document will appear in Helvetica 10. If you use 80% reduction, the printed document will appear in Helvetica 9.

Use the Reduction option to increase the amount of information you can print on a page. If you use the Reduction option for a Database document, Works adjusts the right edge marker in the report window. In the Word Processor and the Spreadsheet, Works adjusts the page break indicators also.

Smoothing The smoothing option is preset. For faster printing, the smoothing option should be turned off, unless you have pasted a picture from MacPaint into the Word Processor.

Appendix D

Choosing Commands from the Keyboard

Many menu commands in Works can also be invoked from the keyboard.

To choose a command from the keyboard, hold down the Command key (⌘) and press the letter corresponding to the particular command. For example, to choose the Save command, hold down the Command key and press the S key.

The following table lists all the Command-key equivalents for the four Works tools.

Key	WP	DB	SS	COM
A		Sort	Absolute Cell Ref	
B	Bold		Bold	
C	Copy	Copy	Copy	Copy
D	Draw	Enter Date	Fill Down	
F	Find	Find Field	Find Cell	
G	Go To Page #		Go To Cell	
I	Italics	Insert Record	Insert	
K	Copy Format			
L		Show List/Form		
M	Prepare to Merge	Match Records		
N	Normal Text		Normal Text	
O	Open	Open	Open	Open
P	Print	Print	Print	Print
Q	Quit	Quit	Quit	Quit
R	Replace		Fill Right	
S	Save	Save	Save	Save
T		Enter Time		
U	Underline		Underline	
V	Paste	Paste	Paste	Paste
W	Small/Full Window	Small/Full Window	Small/Full Window	Small/Full Window
X	Cut	Cut	Cut	Cut
Y	Paste Format			
Z	Undo	Undo	Undo	
=			Calculate Now	Hang Up
"		Duplicate field in previous record		
+				Hang Up
,	Activate last document in Window menu	Activate last document in Window menu	Activate last document in Window menu	Activate last document in Window menu

Appendix E

Limits and Capacities of the Tools

The tables below show specific data limitations for the Database and the Spreadsheet. These numbers apply to both the 512K Macintosh and the Macintosh Plus.

Database	Limits
Fields in a record	60
Characters in a field	248
Characters in a field name	64

Spreadsheet	Limits
Characters in the entry bar	238
Characters in a formula	200
Number of columns in a series chart (except bar charts)	80
Number of rows in a pie chart	15

The table below shows the approximate memory capacities for the Word Processor, Database, and Spreadsheet.

	512K Macintosh	Macintosh Plus
Word Processor		
Pages in a document (text with formatting)	60-80	180-240
Database		
Records in a database (at 100 characters per record)	2,000	6,000
Spreadsheet		
Number of filled cells	7,500	22,500

Word Processor capacities are reduced by text containing graphics, many font changes, or both.

Database capacities are affected by the average number of characters per record.

Spreadsheet capacities are affected by the average length of formulas, and by the amount of text in labels.

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Instructions

Use this form to report software bugs, documentation errors, or suggested enhancements. Mail the form to Microsoft.

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_____ Documentation Problem
(Document # _____)

_____ Software Enhancement

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Software Description

Microsoft Product _____

Rev. _____ Registration # _____

Operating System _____

Rev. _____ Supplier _____

Other Software Used _____

Rev. _____ Supplier _____

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Manufacturer _____ CPU _____ Memory _____ KB

Disk Size _____ " Density: _____ Sides: _____

Single _____ Single _____

Double _____ Double _____

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Date Received _____

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Report Number _____

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